

Zoological Record

Vol. 92, Sect. 2, 1955

PROTOZOA

COMPILED BY

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and R. H. CUMMINGS, Ph.D., B.Sc.

LONDON

PUBLISHED BY

THE ZOOLOGICAL SOCIETY OF LONDON

PRICE TEN SHILLINGS

NOVEMBER 1957

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FOREWORD

Papers dealing with Protozoa entirely from a medical or veterinary standpoint (clinical, therapeutic, etc.) are omitted, but notices of these will be found in *Tropical Diseases Bulletin* and *Veterinary Bulletin*.

I.—TITLES

In the list of titles the year has been omitted where it is the same as the volume year of the "Record", namely (1955).

Anon. (1). Toxoplasmosis in infancy. *Brit. med. J.* 2: 1073-1074.

Anon. (2). Opinions of the International Commission on Zoological Nomenclature concerning the genera *Plasmodium* and *Entamoeba*. *J. Protozool.* 2: 51.

Anon. (3). Bibliographie du *Plasmodium berghei* I. H. Vincke et M. Lips. *Rapp. Inst. Rech. sci. Afr. Centr.* 5: 157-165.

Anon. (4). Professor Saul Adler—pioneer of Israel science. *Refuah Veterinarith, Tel-Aviv* 12: 294-291 portrait. [In Hebrew and English.]

Anon. (5). Brown's Coppice. A survey. *Birmingham* 1954: 1-79, figs.

Anon. (6). T. Wayland Vaughan. *Quart. J. geol. Soc. Lond.* 107 1952: 52-54.

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Abbott, P. *see* Mackinnon, J. E.

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Addax nasomaculatus, intestine (West Africa) : *Diplodinium* spp. (Ciliata), C. Timothée.

Bubalus bubalis, intestine (Philippines) : *Entamoeba bubalis* spn. (Rhizop.), G. A. Noble.

Buffalo, stomach (India) : *Entodinium bengalensis* sp.n. (Ciliata), A. K. Banerjee.

Cattle, stomach (India) : *Diplodinium indicum* sp.n., *Eremoplastron asiaticus* sp.n., *Epidinium bovis* sp.n. (Ciliata), A. K. Banerjee

Cervus canadensis nelsoni, intestine (U.S.A.) ; *Eimeria wapiti* sp.n. (Coccid.), R. F. Honess (2).

Chaus chaus, intestine (Czechoslovakia ex Russia) : *Eimeria chaus* sp.n. (Coccid.), B. Ryšavý.

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Clethrionomys glareolus, brain (Czechoslovakia) : *Toxoplasma glareoli* sp.n. (Sporozoa), B. Erhardova (3).

Corynorhinus rafinesquii, faeces (U.S.A.) : *Klossia variabilis* sp.n. (Coccid.), N. D. Levine, V. Ivens & F. J. Kruidenier (1).

Dicrostonyx torquatus, blood (U.S.A.) : *Trypanosoma* sp. (Mastig.), W.B. Quay.

Dolichotis patagonum (Cavy), intestine (Argentina) : *Eimeria dolichotis* sp.n. (Sporoz.), E. G. Morini, J. J. Boero & A. Rodríguez.

Eptesicus f. fuscus, blood (U.S.A.) : *Trypanosoma* sp. (Mastig.), R. M. Hedrick.

Equus asinus, kidneys (U.S.A.) : *Klossiella equi* sp.n. (= *K.e.* Baumann 1946) (Coccid.), H. R. Seibold & R. E. Thorson (1, 2).

Helogale varia, blood (Congo) : *Babesia vanhoofi* sp.n. (Haemospor.), R. M. de Smet & M. Lips.

Muntiacus muntjak, stomach (India) : *Entodinium muntiacum* sp.n. (Ciliata), A. K. Banerjee.

Neotoma lepida, intestine (U.S.A.) : *Dorisiella arizonensis* sp.n. (Coccid.), N. D. Levine, V. Ivens & F. J. Kruidenier (2).

Odocoileus h. hemionus (mule deer: U.S.A.) : *Eimeria* and *Anaplasma* (Sporoz.), J. F. Landram & R. F. Honess.

Peromyscus maniculatus, faeces (U.S.A.) : *Klossia perplexens* sp.n. (Coccid.), N. D. Levine, V. Ivens & F. J. Kruidenier (1)

Phyllotis a. amicus, intestine (Peru) : *Eimeria weissii* sp.n. (Coccid.), L. G. Mugaburu.

Phyllotis darwini, blood (Peru) : *Trypanosoma* sp. (Mastig.), A. H. Alva.

Rupicapra rupicapra, rumen (Germany) : *Entodinium rupicaprae* sp.n., *Anoploplodinium rupicaprae* sp.n., *Eudiplodinium maggioides* sp.n. (Ciliata), H. Christl.

Rusa unicolor, stomach (India) : *Epidinium rusa* sp.n. (Ciliata), A. K. Banerjee.

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Birds, blood (France) : Haemosporidia recorded, L. Bouisset & J. Ruffié.

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Fringillidae (U.S.A.) : incidence of Haemosporidia, R. D. Manwell (2)

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Accipiter gentilis, intestine (U.S.A.)
Iso spor a buteonis (1st record) (Coccid.)
 J. Holling & C. D. Fowle.

Anas platyrhynchos, intestine (Germany): *Eimeria anatis* sp.n. (Coccid.)
 E. Scholtyseck (1).

Centrocercus urophasianus, intestine (U.S.A.): (i) *Tritrichomonas simoni* sp.n. (Mastig.) R. F. Honess (1); (ii) *Eimeria pattersoni* sp.n. (Coccid.), R. F. Honess & G. Post.

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Ramphastos toco, blood (Brazil): *Plasmodium pinottii* sp.n. (Sporoz.)
 J. M. Muniz & R. de R. L. Soares.

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Turdus migratorius, blood (U.S.A.): incidence of Haemosporidia, R. D. Manwell (3).

Turkey, intestine (England): *Cryptosporidium meleagridis* sp.n. (Coccid.), D. Slavin.

Turkey, intestine (Middle Asia): *Iso spor a heissenii* sp.n. (Coccid.), S. K. Svanbaev.

Reptilia :

Reptiles, blood (Middle Asia): incidence of blood protozoa, A. M. Andruško & G. S. Markov (2).

Reptiles of Karakum desert: incidence of infection with blood protozoa, A. M. Andruško & G. S. Markov (3).

Haemogregarines in reptiles of Chicago Zoo, R. W. Hull & J. H. Camin.

Lizards, intestine (California): *Hexamastix kirbyi* sp.n., *H. crassus* sp.n. (Mastig.), B. M. Honigberg (1).

Eremias grammica, *E. intermedia*, *Phrynocephalus interscapularis*, blood (Middle Asia): *Leishmania zmevi* sp.n. (Mastig.), A. M. Andruško & G. S. Markov (1).

Gecko, blood (Africa): new trypanosome, M. S. Grewal.

Gekko japonicus, gut (Japan): *Eimeria koidzumii* sp.n. (Coccidia), H. Matubayasi.

Naja tripudians, blood (India): *Haemogregarina bipileata* sp.n. (Sporoz.), K. Svahn.

Sceloporus teapensis, blood (Mexico) *Trypanosoma serveti* sp.n. (Mastig.), D. Pelaez & F. Streber.

Sceloporus occidentalis, *Uta stansburiana*, blood (U.S.A.): *Schellackia occidentalis* sp.n. (Coccid.), J. S. Bonorris & G. H. Ball.

Testudo argentina, intestine (London): *Retortamonas testudae* sp.n. (Mastig.), M. A. R. Ansari (3).

Thecadactylus rapicauda, blood (Venezuela): *Trypanosoma ocumarensis* sp.n. (Mastig.), J. V. Scorza & C. Dagert.

Amphibia :

Amphibia: list of parasitic protozoa recorded since 1954, A. C. Walton.

Amphibia: description of endoparasitic protozoa, D. Chardez.

Tadpoles of frogs and toads, gut (U.S.A.): Opalinid ciliates [flagellates] recorded, C. L. Nesslinger.

Ambystoma tigrinum, intestine (U.S.A.): *Eimeria distorta* sp.n., *E. kingi* sp.n., *E. waltoni* sp.n., *E. ambystomi* sp.n. (Coccid.) L. H. Saxe.

Taricha granulosa, blood (U.S.A.): *Trypanosoma ambystomae* (record for new host) (Mastig.), D. L. Lehmann (1).

Pisces :

Fishes (Gulf of Mexico): first record of Myxosporidia, R. H. Rigdon & J. W. Hendricks.

Fishes of Barents Sea: parasitic protozoa, J. I. Poljanskij.

Achirus fasciatus, blood (Atlantic ocean): *Haemogregarina achiri* sp.n., (Coccid.), D. C. Saunders.

Arteidiellus europeus, gall bladder (Barents Sea): *Ceratomyxa arteidielli* sp.n. (Myxospor.), J. I. Poljanskij.

Cyprinus carpio hematopterus, various tissues (river Amur): *Thelohanellus acuminatus* sp.n., *T. dogieli* sp.n., *T. amurensis* sp.n., *T. nikolskii* sp.n. (Micro-spor.), A. C. Achmerov (1).

Gadus morhua (Barents Sea), (1) fins: *Trichodina murmanica* sp.n. (Ciliata); (2) muscles: *Plistophora gadi* sp.n. (Microspor.), J. I. Poljanskij.

Gasterosteus aculeatus, gills (Barents Sea): *Trichodina gracilis* sp.n. (Ciliata), J. I. Poljanskij.

Hippoglossus hippoglossus, gall bladder (Barents Sea): *Sphaeromyxa minuta* sp.n. (Myxospor.), J. I. Poljanskij.

Lateolabrax japonicus, muscles (Japan): *Neochloromyxum cruciformum* gen. n., sp.n. (Myxospor.), K. Matsumoto.

Myxocephalus scorpius, urinary bladder (Barents Sea): *Myxoproteus brevis* sp.n. (Myxospor.), J. I. Poljanskij.

Ophicephalus striatus, blood (India): *Trypanosoma striati* sp.n. (Mastigoph) S. S. Qadri.

Perca fluviatilis, skin (Lake of Geneva): *Dermocystidium guyenoti* sp.n. (Haplospor.), L. Thélin.

Pollachius virens, fins (Barents Sea): *Trichodina murmanica* sp.n. (Ciliata), J. I. Poljanskij.

Raja radiata, ovary and urinary bladder (Barents Sea): *Trichodina oviducti* sp.n. (Ciliata), J. I. Poljanskij.

Thunnus thynnus, muscles (Atlantic coast of N. Africa): *Kudoa clupeidae* Hahn (Myxospor.) 1st record, R. P. Dollfus.

Tilapia mossambica, blood (East Africa): *Trypanosoma napolesi* sp.n. *T. rebeloi* sp.n., *T. serranoi* sp.n. (Mastig.), J. A. Travassos Santos Dias.

Xiphias gladius, muscles (Japan): *Chloromyxum musculoliquefaciens* sp.n. (Myxospor.), K. Matsumoto.

Insecta :

Beetles: protozoal parasites recorded, J. Théodoridès (5)

Coleoptera Tenebrionidae of Israel: record of gregarines, with host-list, J. Théodoridès (2, 4)

Coleoptera Tenebrionidae: description of parasitic *Gregarina* spp., with host-list, J. Théodoridès (1).

Tenebrionid larvae (Japan): *Steinina minor* sp.n. (Gregarin), K. Obata.

Termites, gut (India): Hypermastigid flagellates described, K. R. Karandikar & M. Vittal.

Anomala dubia (France): *Stictospora provincialis* var. n. *anomala* (Gregar.) J. Théodoridès (5).

Anoplogeniis cyanescens (Japan): *Alaspora depressa* gen.n., sp.n. (Gregarin.), K. Obata.

Aphodius rectus (Japan): *Didymophyes diminuta* sp.n. (Gregarin.), K. Obata.

Apis mellifera, ventriculus (Venezuela): Gregarines (undetermined), M. Stejskal.

Aptera cingulata, gut (S. Africa): *Gregarina fastidiosa* sp.n. (Sporoz.), A. D. Harrison.

Archotermopsis wroughtoni, gut (Pakistan): *Prorotrichonympha pristina* gen.n., sp.n., *Parajoenopsis cephalotricha* gen.n., sp.n. (Mastig. Hypermast.), M. Saleem.

Arthromacra sumptuosa (Japan): *Gregarina arthromacrae* sp.n. (Gregarin.), K. Obata.

Blaps spp. (France): *Stylocephalus eastoni* sp.n., *S. phalloides* sp.n. (Gregar.), J. Théodoridès (5).

Chilocorus rubidus (Japan): *Gregarina chilocori* sp.n. (Gregarin.), K. Obata.

Chlaenius spp. (Japan): *Gregarina ovosatellitidis* sp.n., *Ascocephalus armatus* gen.n. sp.n., *Ramicephalus ozakii* gen.n., sp.n. (Gregarin.), K. Obata.

Choristoneura fumiferana, various tissues (N. America): *Perezia fumiferanae* sp.n. (Microspor.) H. M. Thomson.

Coeagrion quodrigerum (Japan): *Hoplorhynchus hexacanthus* sp.n. (Gregarin.), K. Obata.

Copris lunaris, gut (France): *Didymophyes tuzetae* sp.n. (Gregar.), J. Théodoridès (5).

Coptotermes heimi, gut (India): *Pseudotrichonympha cardiformis* sp.n. *P. pisciformis* sp.n., *P. subapicalis* sp.n., *Holomastigotoides dharwarensis* sp.n., *H. rayi* sp.n., *Spirotrichonympha froilanoi* sp.n., *S. karnataka* sp.n. (Mastigoph.), K. R. Karandika & M. Vittal.

Craspedonotus tibialis (Japan): *Gregarina craspedonoti* sp.n. (Gregarin.), K. Obata.

Gonocephalum rusticum: *Gregarina ormieri* sp.n. (Sporoz.), J. Théodoridès (1).

Gonocephalus pubens (Japan): *Gregarina gonocephali* sp.n. (Gregarin.) K. Obata.

Hegeter tristis: *Gregarina* sp. (Sporoz.), J. Théodoridès (1).

Heterotermes malabaricus, gut (India): *Pseudotrichonympha cardiformis* sp.n., *P. pisciformis* sp.n., *P. subapicalis* sp.n., *Holomastigotoides dharwarensis* sp.n., *Spirotrichonympha froilanoi* sp.n. (Mastigoph.), K. R. Karandikar & M. Vittal.

Lucanus cervus (France): *Actinocephalus conicus* var. n. magna (Gregar.), J. Théodoridès (5).

Macropodia variolaris, gut (West Africa): *Campanacephalus villiersi* gen. n., sp.n. (Gregar.), J. Théodoridès (3).

Melanosilpha capensis, gut (S. Africa): *Gregarina sandoni* sp.n. *G. impetuosa* sp.n. (Sporoz.), A. D. Harrison.

Phylan abbreviatus (France): *Gregarina maculata* var. n. *banyulensis* (Gregar.), J. Théodoridès (5).

Phylan planiusculus: *Gregarina* sp. (Sporoz.), J. Théodoridès (1).

Reticulitermes lucifugus, gut (Romania): *Trichonympha agilis* var. n. *danubica* (Mastig.), M. A. Ionescu & A. Murgoci.

Scarabaeid larvae (Japan): *Stictospora coelocystis* sp.n. (Gregarin.), K. Obata.

Scarabaeus laticollis, gut (France): *Didymophyes scarabaei* sp.n. (Gregar.) J. Théodoridès (5).

Scaurus puncticollis: *Gregarina wahrmani* sp.n. (Sporoz.), J. Théodoridès (1).

Scaurus striatus: *Gregarina* sp. (Sporoz.), J. Théodoridès (1).

Sisypheus sisyphei, gut (France): *Didymophyes sisyphei* sp.n. (Gregar.), J. Théodoridès (5).

Silpha carinata (France): *Ancyrophora cervicornis* sp.n. (Gregar.), J. Théodoridès (5).

Temnopteryx phalerata, gut (S. Africa): *Gregarina gibbsi* sp.n. (Sporoz.) A. D. Harrison.

Tribolium castaneum, fat body (England): *Triboliocystis garnhami* gen.n., sp.n. (Schizogreg.), *Nosema buckleyi* sp.n. (Microspor.), A. S. Dissanaïke (2).

Uloma latimamus (Japan): *Gregarina tokonoi* sp.n. (Gregarin.), K. Obata.

Myriapoda :

Diplopoda : parasitic protozoa reported from Madagascar, O. Tuzet & J. F. Manier.

Sphaerotheriidae, gut (Madagascar): *Nyctotherus madagascari* sp. n. (Ciliata), O. Tuzet & J. F. Manier.

Spirostrepsidae, gut (Madagascar): *Nyctotherus mandrakae* sp.n. (Ciliata), *Stenophora mandrakae* sp.n. (Gregar.), O. Tuzet & J. F. Manier.

Arachnida :

Ticks : list of vectors of piroplasms of domestic animals, V. F. Kapustin.

Scutovertex minutus (Czechoslovakia): *Gregarina scutovertexi* sp. n., *G. corolla* sp.n. (Gregar.), B. Erhardova (1).

Crustacea :

Eupagurus prideauxi (Mediterranean): new host for *Pebrilla paguri* (Folliculinid.) J. P. Changeux & C. D. Deboutteville.

Mollusca :

Molluscs : parasitic ciliates recorded, A. Hampl.

Doubtful record of sporozoan in *Cardium edule*, J. B. Cowey.

Unio crassus and *Anodonta cygnaea*, gills (Germany): *Trichodina unionis* sp.n. (Ciliata), A. Hampl.

Annelida :

Allobophora caliginosa, various tissues (France): *Monocystis hispida* sp.n., *Rhabdocystis gyriniformis* sp.n., *Zygocystis grassei* sp.n. (Gregar.), R. Loubatières.

Allobophora chlorotica, seminal vesicles (France); *Apolocystis pertusa* sp.n., *Nematocystis claviformis* sp.n. (Gregar.), R. Loubatières.

Allobophora gigas (France): *Monocystis buccalis* sp.n., *Nematocystis pistilliformis* sp.n., *Zygocystis cordiformis* sp.n. (Gregar.), R. Loubatières.

Dichogaster inermis, seminal vesicles (West Africa): *Monocystis dichogasteri* sp.n. (Gregar.), *Ptychostomum dichogasteri* sp.n. *Anoplophrya dichogasteri* sp.n. (Ciliata) O. Tuzet & M. Zuber-Vogel.

Eisenia foetida (France): *Monocystis critata* sp.n., *M. cuneiformis* sp.n., *M. lopadiformis* sp.n., *Zygocystis eiseniae* sp.n. (Gregar.), R. Loubatières.

Eisenia rosea (France): *Dirhynchocystis elongata* sp.n., *Monocystis hederacea* sp.n., *M. proteiformis* sp.n., *Nematocystis sinuosa* sp.n., *Rhynchocystis ovata* sp.n. (Gregar.), R. Loubatières.

Limnodrilus antonii, body cavity (Poland): *Siedleckiella antonii* sp.n. (Spor. Actinomyx.), J. Janiszewska (2).

Octolasmus complanatum (France): *Nematocystis clipeiformis* sp.n., *N. navicula* sp.n., *N. tuzeti* sp.n. (Gregar.), R. Loubatières.

Polydora giardi, gut (France: Atlantic coast): (i) *Hovasiella polydora* gen.n., sp.n. (Ciliata), P. de Puytorac (1); (ii) *Thelohania georgevitchi* sp.n. (Microspor.), P. de Puytorac (2).

Lumbricus terrestris (France): *Nematocystis caudata* sp.n. *Rhynchocystis ovata* sp.n. (Gregar.), R. Loubatières

Tubifex tubifex (Poland), (1) body cavity: *Raabeia gorlicensis* gen.n., sp.n., (2) gut: *Hexactinomyxon hedvigi* sp.n. (Actinomyx.), J. Janiszewska (1).

Platyhelminthes :

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Coelenterata :

Anthopleura xanthogrammica, body cavity (California): *Foettingeria* sp. (Ciliata), G. H. Ball & R. E. Moebius.

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Lecudina sp. (Gregar.) from marine Annelid worms (Coast of California): *Amphiacantha ovalis* sp.n., *A. attenuata* sp.n. (Haplospor.), J. W. Stubblefield.

Ciliate (indet.) parasitic in *Polydora* (Polychaete) (Atlantic coast of France): *Thelohania georgevitchi* sp.n. (Microspor.), P. de Puytorac (2).

Eremoplastron bovis (Ophryoscolicid): *Sphaerita hoare* sp.n. (Chytrid), G. Lubinsky (1).

Eudiplodinium maggii (Ophryoscolicid): *Sagittospora cameroni* gen. n., sp.n. (Phycomycetes), G. Lubinsky (2).

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born; Experimental infection of cows with *Trichomonas* from pigs, P. R. Fitzgerald, A. E. Johnson, J. Thorne & D. M. Hammond; Hexamitiasis in turkeys, J. E. Wilson & D. Slavin; Human giardiasis (general), M. A. R. Ansari (2); Incidence of *Giardia* infection in Warsaw children, I. Iwanczuk & I. Stobnicka; Effect of disinfectants on cysts of human *Giardia*, L. Červa (1); *Trichomonas vaginalis* infection in males, W. E. Coutts etc; J. Whittington; F. L. Lydon;

Coccidiosis.—New *Cryptosporidium* pathogenic to turkeys, D. Slavin; Fowl coccidiosis, E. Scholtyseck (2); Effect of temperature on sporulation of oocysts and incubation periods in *Eimeria* spp. of poultry, S. A. Edgar; Effect of digestive juices in fowl on *Eimeria* infection, M. Ikeda; Coccidial oocysts in "deep litter" of poultry houses, S. F. M. Davies & L. P. Joyner; Fowl coccidiosis in Spain, A. S. Franco; Human coccidiosis in Natal, S. E. Dodds & R. Elsdon-Dew; Human infections with *Iso-spora* in U.S.A., C. F. Routh, J. E. McCroan & C. G. Hames; Life-cycle of *Iso-spora felis*, D. J. Hitchcock.

Malaria.—Simuliid vectors of *Leucocytozoon* of ducks, A. M. Fallis, R. C. Anderson & G. F. Bennett; Gametogenesis in Haemosporidia, especially *Plasmodium*, A. Bishop; Evolution of *Plasmodium*, R. D. Manwell (1); Malariological terminology, M. Vaucel, E. Roubaud & H. Galliard; Unsolved problems concerning human malaria parasites, J. A. Sinton (1); Immunity in malaria, L. Parrot (1); Immunity in *Plasmodium* infections of animals, A. Corradetti; Residual premunity in malaria, L. Parrot (2); Epidemiological significance of gametocyte output in malaria, H. G. S. Morin; Henry's reaction in the diagnosis of malaria, J. Schneider & L. Hartmann; Diagnosis of malaria parasites in films of clotted blood, D. M. Melvin; Immunity to *P. vivax* in American Negroes, M. D. Young, D. E. Eyles, R. W. Burgess & G. M. Jeffery; Long latency in infections with *P. vivax* strains of

temperate climates, C. W. F. Winkel; Factors affecting transmission of human malaria, G. Davidson; Effect of D.D.T. on sporogony of *Plasmodium* in mosquitoes, B. N. Mohan (3); Refractoriness of *Culex* to infection with *P. falciparum*, Jaswant Singh & B. N. Mohan; Transmission of *P. malariae* by *Anopheles* in laboratory, P. G. Shute & M. Maryon (1); Exoerythrocytic stages of *P. ovale*, P. C. C. Garnham etc.; Changes in erythrocytes in *P. ovale* infections, J. A. Sinton (2); *P. ovale* in French West Africa, A. Masseguin & A. Palinacci; *P. ovale* in French Cameroons, J. Languillon, J. Mouchet & E. Rivola; Comparison of African and Pacific strains of *P. ovale*, G. M. Jeffery, A. Wilcox & M. D. Young; *P. schweiz*, from chimpanzee: development in mosquitoes, transmission to and infection in man, J. Rodhain; J. Rodhain & R. Dellaert (1, 2); Bibliography on *P. berghei*, Anon. (3); Intracellular position of *P. berghei*, J. D. Fulton & T. H. Flewett; Latent *P. berghei* infections, E. Sergeant (1); Suppression of *P. berghei* by virus, M. Yoeli, Y. Becker & H. Bernkopf; Course of *P. berghei* infection in rodents, E. Sergeant & A. Poncet (1, 2, 3); Course of *P. berghei* infection in mice in relation to blood changes, G. Arcoles & P. M. Carrescia; Effect of milk diet on *P. berghei* infection, A. Corradetti, L. Tentori & F. Verolini; Effect of milk diet of mice of different ages on infection with *P. berghei*, P. M. Carrescia; Effect of milk diet on infection of mice with *P. berghei*, P. Durand & M. Mathis (2); Congenital transmission of *P. berghei*, H. Werner (1); *P. berghei*: development in mosquitoes and cyclical transmission, J. Rodhain, M. Wanson & J. Vincke (1, 2); Variation in serum proteins in infection with *P. berghei*, R. M. de Smet; *P. praecox* in sparrows of Iraq, A. H. Al-Abbass; Connective tissue reactions to *Plasmodium* infection in chicks, W. H. Taliaferro & L. G. Taliaferro; J. W. Moulder & W. H. Taliaferro; Variation in susceptibility of *Aedes* spp. to *P. gallinaceum*, B. N. Mohan (1);

Susceptibility of *Anopheles* spp. to *P. falciparum*, B. N. Mohan (2); Viability of sporozoites of *P. gallinaceum* in non-susceptible hosts in relation to their histotropism, G. Raffaele; Natural immunity of guinea-fowl to *P. gallinaceum*, F. Verolini.

Piroplasmosis.—List of ticks-vectors of piroplasmoses of domestic animals, V. F. Kapustin; Research on piroplasms in Israel, I. Tsur-Tchernomoretz; First record of *Babesia argentina* in Peruvian cattle, B. E. Parra Ormeño (2); Species of bovine *Babesiella* in Europe, T. Simitch, Z. Petrovitch & R. Rakovec.

Other Sporozoa.—Gregarines pathogenic to bees in Venezeula, M. Stejskal; Effect of *Nematopsis* (Gregarines) on oysters and crabs, V. Sprague & P. E. Orr jr.; Laelaptid mites as vectors of *Hepatozoon* of squirrels, G. M. Clark; Myxosporidiosis ("Twist disease") due to *Myxosoma* of trout in Russia, A. V. Uspenskaja; Biological control of moth *Hyphantria* by parasitic *Thelohania*, J. Weiser & J. Veber; *Nosema* infection of ventriculus of bees, L. Bailey; Human sarcosporidiosis in Sudan, J. E. Mackinnon & P. Abbott; *Dermocystidium* pathogenic to oysters, S. M. Ray & A. C. Chandler; *Dermocystidium* infection of oysters off Florida, C. E. Dawson.

Ciliates.—Human balantidiosis in Costa Rica, R. Céspedes & P. Morera; *Balantidium coli* in rats, V. V. Bogdanovič; Physiology and host-parasite relations in rumen ciliates, A. E. Oxford; *Ichthyophthirius* infection among aquarium fishes, Y. R. Tripathi; *Tetrahymena* epibiotic on and pathogenic to fishes, R. F. Nigrelli, S. Jakowska & M. Padnos

Toxoplasmosis.—Toxoplasmosis (general), E. G. Nauck; R. C. Rendtorff; D. N. Zasuchin & S. G. Zasuchina; Human toxoplasmosis (general), F. Naquira, A. Neghme & E. Thiermann; Toxoplasmosis in infants, Anon. (1); Polish works on toxoplasmosis, Z. Kozar; Techni-

que of dye-test for toxoplasmosis, M. M. Brooke & A. J. Sulzer; Compement-fixation test for toxoplasmosis, F. Roger, P. Giroud & A. Roger; Immunization against toxoplasmosis, R. Vollbrechtshausen; Isolation of pure *Toxoplasma* for antigens, M. Behrens & H. Geissler; Viability of *Toxoplasma* under different conditions, H. Geissler; Viability of *Toxoplasma* in carcasses, E. Kåss; Variation in virulence of *Toxoplasma*, R. Lainson (2); Increase of virulence of *Toxoplasma* by mice passages, M. L. Melton & L. Jacobs; Immunity in rabbit toxoplasmosis, P. Nobrega, E. E. Trapp & M. Giovannoni (2); Absence of *Toxoplasma* in experimentally infected non-biting insects, L. Schmidtke (2); Duration of "droplet" transmission of *Toxoplasma* in guinea-pigs, Z. Schmidtke (1); Experimental toxoplasmosis, J. M. Doby & S. Deblock; J. M. Doby S. Deblock & M. Doby-Dubois; Toxoplasmosis in Italy, P. Tolentino; Human toxoplasmosis in Tunis, C. Vermeil; Human and canine toxoplasmosis in Algeria, L. Balozet. Toxoplasmosis in dogs, L. Jacobs, M. L. Melton & M. K. Cook; *Toxoplasma* in tissues of dog kept as pet, A. C. Krause; Canine toxoplasmosis complicated by distemper, R. S. F. Campbell, W. B. Martin & E. D. Gordon; Canine toxoplasmosis in France, M. Lozac'h & C. Vialat; Canine toxoplasmosis in Tennessee, U.S.A., C. L. Gibson & J. R. Jumper; Characteristic of Mexican strains of *Toxoplasma*, G. Varela, E. Roch & A. Vazquez; Effect of cortisone on course of toxoplasmosis in mice, O. Havlik, J. Hübner & M. Zastěra; Experimental toxoplasmosis in monkeys, W. Mohr, H. Wahle & A. Stammeler; Pseudocysts of *Toxoplasma* in laboratory rodents, R. Lainson (4); Toxoplasmosis in rats, F. Schmidt-Hoensdorf & J. Holz; *Toxoplasma* in pulmonary infections of mice, F. Roger & P. Giroud; Toxoplasmosis in English rabbits, R. Lainson (1, 3); *Toxoplasma* in bank voles, B. Erhardova (3); Epizootic toxoplasmosis of fowls in Brazil, P. Nobrega, E. Trapp & M. Giovannoni (1); Toxoplasmosis in part-

ridges and hares of Czechoslovakia, B. Pokorný.

Protista incertae sedis.—*Pneumocystis* infection of infants, O. Jirovec (2); *Pneumocystis* causing interstitial pneumonia in infants, G. Piekarski & W. Sibbing; *Pneumocystis* infections in U.S.S.R., D. N. Zasuchin & G. D. Zasuchina; Protozoon (?) in human case of hepato-splenomegaly, A. Zlotnick.

Chemotherapy.—Drug-resistance in fowl *Eimeria* spp., A. C. Cuckler & C. M. Malanga (1); Effect of Protocid on fowl coccidia, E. Scholtyseck (2); Effect of allyl acetone on fowl *Eimeria*, W. A. Uricchio; Problems of chemotherapy of malaria, Jaswant Singh; Resistance of *Plasmodium* to pyrimethamine, R. S. Bray; T. M. Rollo; Effect of antimalarials on avian *Plasmodium*, I. Okpala & R. D. Manwell; Effect of metachloridine on *Plasmodium* of chicks kept on purified diet, D. J. Taylor & J. Greenberg (2); Effect of hypoxia on response to drugs in avian malaria, F. W. Hughes & A. L. Tatum; Effect of fumagillin on *Nosema* in bees, H. E. Cmejla, C. A. Herrick & C. L. Farrar; Effect of tetracycline on *Toxoplasma*, A. Crema & P. Gaffuri; Effect of antrycide on trypanosomes, F. Hawking & J. P. Thurston; Stilbamidine-resistance in *Trypanosoma rhodesiense*, J. D. Fulton & P. T. Grant; Acquired resistance to antrycide in cattle infected with *Trypanosoma congolense*, M. A. Soltys; Experimental chemotherapy of amoebiasis, V. D. Nosina; Effect of 8-quinolins on *Entamoeba histolytica*, P. E. Thompson, J. W. Reinertson, A. Bayles, D. A. McCarthy & E. F. Elslager.

DISTRIBUTION

(a) GEOGRAPHICAL

General.—Distribution of deep-sea protozoa, J. L. Kulp & D. R. Carr; Geographical distribution of *Cystocephalus algerianus* var. *mauritanica*, J. Théodoridès (6).

1. Land and Freshwater.

Palaeartic Region.—Europe.—Protozoa of the Catalan coast, France C. D. Debutteville; Plankton of Lac de Bret, F. Cosandey; Freshwater protozoa of north-east Spain, R. Margalef (2); Protozoa of a Hungarian temporary meadow pool, J. Gelei; Plankton of Lake Balaton, G. Tamás; Soil protozoa of Latvia, V. K. Eglitis; Protozoa of the Birmingham district, Anon (5); New amoebid from Scotland, C. Hayes; Thekamoebea in France, R. Thomas; New hypotrichid from France, E. Fauré-Fremiet (3); Sands ciliates in France, E. Fauré-Fremiet & M. Tuffrau; Ciliata in Italy, M. F. Canella; Rhizopoda of the River Donau, Bavaria, M. Erth; A new German peritrichid, D. Matthes (3); Rhizopoda in Czechoslovakia, M. Stěpánek (2); Testacea of Czechoslovakian rivers, M. Stěpánek (1); Dinoflagellates of Lake Balaton, O. Sebestyén; Protozoal infections of animals in Mediterranean area, J. Euzéby; Gregarines of beetles from Israel, J. Théodoridès (2).

Ethiopian Region.—Africa.—Thecamoebians from African caves, L. Decloitre.

Nearctic Region.

North America.—Folliculinids from British Columbia, E. A. Andrews (2).

United States.—Freshwater protozoa in Minnesota, G. A. Cole; Chagas' disease in U.S.A., N. C. Woody & H. B. Woody; Plankton of Colorado Lakes, R. W. Pennak;

West Indies.—New amoebid from Cuba, J. F. de la Arena.

Antarctica.—Protozoa from Tierra del Fuego, J. Frenguelli.

2. Marine.—North Temperate.—North Atlantic foraminifera, F. B. Phleger, Parker & Peirson; D. B. Ericson, Ewing & Heezen; Protista of Cumbrae, Firth of Clyde, Scotland, M. R. Droop; Brackish water protista from Belgium, W. Conrad & H. Kufferath; Recent foraminifera

from Finistere, P. Lefèvre & G. Lucas; Ciliates of Kieler Bucht, K. J. Bock; Recent foraminifera from the Bay of Fundy, G. L. Harrington (2); *Globorotalia* in the North Atlantic, D. B. Ericson, Wollin & Wollin; Brackish water foraminifera of the New York Bight, P. H. Ronai; Protozoa of Mallorca, R. Margalef (1); Foraminifera of the North African coast, P. Muraour (1, 2); *Pebrilla paguri* (Folliculinid) in the Mediterranean, J. P. Changeux & C. D. Deboutteville; Foraminifera from the Genoa coast, M. Giunta; Deep-water foraminifera off Capri, M. B. Cita (1); New *Peridinium* from Monaco, Y. Halim; *Epistylis* from Yugoslavia, D. Matthes (4); Tintinnids in the Bay of Algiers, J. Lecal; Heterotrichid in the Bay of Algiers, M. Hamon; New Trochamminidae from the Northern Pacific, Z. G. Shchedrina; Radiolaria from the Bering Straits, V. V. Reshetnyak (2); Marine protozoa off Point Barrow, Alaska, G. S. McGinitie; Radiolaria of the Okhotsk Sea, V. V. Reshetnyak (1); Foraminifera of the Californian coast, W. S. Butcher; C. C. Church; Plankton of Japanese coastal waters, I. Yamazi (1, 2, 3); I. Yamazi & T. Horibata.

Tropical.—Foraminifera of Louisiana Gulf Coast, H. V. Anderson; Gulf of Mexico protozoa, V. Sprague; Foraminifera of the Gulf of Mexico, F. L. Parker (1); F. B. Phleger & F. L. Parker; Foraminifera of the Argentine coast, E. Boltovskoy (4); Benthonic foraminifera of Californian coast, W. R. Walton; Foraminifera of the Japanese coast, M. Morishima & Chiji.

South Temperate & Subantarctic.—Foraminifera of the Argentine coast, E. Boltovskoy (1).

Antarctic.—Antarctic Suctorina collected by Swedish expedition (1901–3), C. A. Allgén.

(b) GEOLOGICAL

General.—Taxonomic, stratigraphic, and ecologic studies of foraminifera, M. F. Glaessner (2); Planktonic foraminifera in correla-

tion, W. H. Akers; Value of microfossil census studies, S. P. Ellison; Recent oolites and foraminifera, G. Lucas; Protozoa of organic reefs, P. E. Cloud; Foraminiferal facies in sedimentary basins, L. G. Weeks; Brackish-water foraminifera, P. H. Ronai; Pelagic foraminifera as indicators of depositional environment, F. D. Smith; Foraminiferal facies in Hungary, L. Majzon (2); Foraminifera palaeoecology in stratigraphy, C. C. Allbritton etc. (1); Palaeoecology of Chalk Marl foraminifera, T. P. Burnaby; Reworked foraminifera in Germany, H. Hagn (2); Foraminifera faunal breaks, O. H. Schindewolf; Chemical composition of *Globigerina* ooze, Z. L. Sujkowskii; Foraminiferal faunas as indicators of slumping, F. B. Phleger; Emendation and revision of foraminifera, A. R. Loeblich & H. Tappan (2); Revision of some glanduline Nodosarididae, A. R. Loeblich & H. Tappan (1); Systematic distribution of Nummulites, G. I. Nemkov; Coiling direction of *Globorotalia* in stratigraphy, D. B. Ericson, Wollin & Wollin; Dating vertebrate remains by protozoan content of matrices, J. Hofker (2); Aragonite in foraminiferal tests, J. C. Troelsen (1); Wall-structure of foraminifera, J. H. van Voorthuysen; Wall-structure of Fusulinidae, M. N. Solovyeva (2); Tensile strength of fusulinid tests, F. Kahler; Effect of fossilisation on foraminifera, H. Beckmann; Secondary alteration in foraminiferal tests, R. H. Cummings (1); Structure of foraminiferal tests, C. Emiliani (2); Fossil coccoliths from the East Indies, E. Kamptner.

Primary: Cambrian foraminifera in Scandinavia, B. Waern.

Ordovician foraminifera in Russia, N. I. Rafienko.

Devonian foraminifera in Czechoslovakia, V. Pokórny (2); Devonian foraminifera in the U.S.S.R. S. V. Semikhatova & P. A. Menyailenko; S. S. Kuznetsov & A. D. Miklukho-Maklai.

British Upper Palaeozoic foraminifera, R. H. Cummings (3); Upper

Palaeozoic foraminifera of the U.S.S.R., M. N. Solovyeva (1); O. L. Einov (2); G. D. Kireeva & L. P. Nesterenko; E. N. Larionova & T. P. Safonova; Upper Palaeozoic foraminifera in Russia, V. A. Bankovski & N. A. Redichkin, O. L. Einov (2).

Foraminiferal facies in European Carboniferous, H. Schmidt; Carboniferous foraminifera in Britain, R. H. Cummings (1, 2); Carboniferous foraminifera in Ireland, I. M. Simpson; Carboniferous foraminifera in the Ruhr, G. Kremp; Lower Carboniferous foraminifera in the Ruhr, G. Kremp; Lower Carboniferous foraminifera in the U.S.S.R., S. V. Semikhatova & P. A. Menyailenko; V. M. Pozner; Visean foraminifera in the U.S.S.R., O. L. Einov (1); Russian Carboniferous foraminifera, I. N. Orlova; Namurian foraminifera from the Donetz Basin, D. E. Aisenberg & N. E. Brazhnikova; Namurian foraminifera in Russia, S. V. Semikhatova; Middle Carboniferous foraminifera in the U.S.S.R., N. A. Redichkin; Fusulinids in Central Europe, V. Kochansky-Devidé & A. Ramovs; New fusulinid of the Russian Carboniferous, M. N. Solovyeva (3); Fusulinids of the Southern Urals, A. L. Yanshin; Fusulinid zones in Russia, D. M. Rauser-Chernousova; Permian foraminifera in the Donetz Basin, A. A. Bilik, etc.; F. E. Lapchik; I. Y. Lapkin; Permian fusulinids from the U.S.S.R., A. D. Miklukho-Maklai; Permian foraminifera in Montenegro, V. Kochansky-Devidé,

Upper Palaeozoic foraminifera in North Caucasus, E. N. Dyakonova-Savelyeva; Upper Palaeozoic foraminifera in Indochina, E. Saurin (1); Upper Palaeozoic foraminifera from Siam, K. Konishi (2); Upper Palaeozoic foraminifera from Japan, K. Kanmera (1); Carboniferous foraminifera in Japan, K. Kanmera (3); Carboniferous and Permian foraminifera in North Vietnam, E. Saurin (2); Carboniferous foraminifera from Manchuria, H. Yabe & M. Eguchi; Permian foraminifera in Japan, K. Konishi (1); H. Morita; Permian fusulinids in

Japan, R. Torijama (1); New Permian fusulinids from Japan, R. Morikawa (4); Fusulinids from Japan, J. Arai, etc.; R. Endo; T. Chizaka; H. Fujimoto; H. Fujimoto & S. Kawada; I. Hayasaka & H. Matsuo; K. Kanmera (2); S. Kanuma; S. Kawada & H. Fujimoto; R. Morikawa (1, 2, -3); S. Shikanuma; R. Toriyama (2, 3); Fusulinids in Japan, N. Tamura, T. Sato & N. Toyama; Y. Takaoka S. Takano; T. Takano; R. Toriyama & R. Choh; Fusulinids in Japan, T. P. Yen, C. C. Sheng & W. P. Keng.

Fusulinids in Japan, H. Yamada, H. Fujimoto & S. Yoshida; Fusulinids in Californian Permian, J. P. Albers & J. F. Robertson; Carboniferous foraminifera from Ohio, M. F. Marple; Fusulinids in Oklahoma, R. D. Alexander; Fusulinids from Utah, H. J. Bissell; Pennsylvanian-Permian fusulinids in Idaho, D. A. Bostwick; Permian Carboniferous foraminifera of Colorado and New Mexico, K. G. Brill; Fusulinids in American Wolfcampian, M. L. Thompson; Pennsylvanian foraminifera in Texas, R. H. J. Elliott & O. J. Kim; Permian fusulinids in Texas, J. W. Skinner & G. L. Wilde; Pennsylvanian foraminifera in Kansas, W. Lebsack; Fusulinids in Kansas, H. G. O'Connor & J. M. Jewett.

Permian fusulinids in New Zealand, N. de B. Hornibrook (1); Range of *Neoschwagerina syrtalis*, R. Ciry; Pennsylvanian foraminifera in limestones, J. H. Johnson; Evolution of the Fusulinidae, D. M. Rauser-Chernousova & S. E. Rozovskaya.

Upper Palaeozoic radiolaria in the U.S.S.R., O. L. Einov (2); New Hystrichosphaeridians from the German Palaeozoic, D. Sanne-mann; Chitinozoans and Hystrichosphospheridians in the European Palaeozoic, A. Eisenack (2); New Palaeozoic chitinozoans from North Europe, A. Eisenack (3).

Secondary: Mesozoic foraminifera in France, J. Cuvillier (2); Y. Gabler etc.; A. Lombard;

Mesozoic foraminifera in Switzerland, G. **Rosenberg**; Foraminifera in the German Mesozoic, G. **Schmidt**; Mesozoic foraminifera in the German Tyrol, O. **Schulz**; Mesozoic foraminifera in Hungary, L. **Majzon** (3); Mesozoic foraminifera in the U.S.S.R. A. S. **Moiseev**; Triassic foraminifera of the Dnieper-Donetz Basin, F. E. **Lapchik**; Jurasic foraminifera in Europe, F. **Firton**; Thin-sections of European Jurassic foraminifera, E. **Kaechlin**; Jurassic foraminifera in France, A. **Carozzi** (1); New Jurasic foraminifera from Poland, W. **Bielecka** & W. **Pozaryski**; Jurassic foraminifera in Switzerland, A. **Carozzi** (3); Jurassic and Cretaceous fossil protozoans from Spain, G. **Colom** (3); Cretaceous foraminifera in Europe, O. **Ganss** & H. C. G. **Knipscheer**; Foraminifera in the European Cretaceous, E. **Voigt** (1, 2); Foraminifera of the Chalk Marl, England, T. P. **Burnaby**; Cretaceous foraminifera from Holland J. **Hofker** (3); Cretaceous foraminifera in Switzerland, A. **Carozzi** (2); Cretaceous foraminifera from Czechoslovakia, V. **Kantorová**; Cretaceous foraminifera and radiolaria in Bavaria, I. de **Klasz** (1); Foraminifera in Italian Cretaceous, M. B. **Cita** (2); Cretaceous foraminifera in Germany, H. **Bartenstein**; H. **Hiltermann** (1); R. **Huckriede**; Cretaceous foraminifera in Central Europe, H. **Hagn** (1); A. **Papp** (1, 2) Lower Cretaceous foraminifera in France, P. **Donze** & J. **Rosset**; Cretaceous foraminifera in France, J. **Cuvillier** (1); L. **Feugueur** & P. **Marie**; E. **Twerenbold**; Foraminifera in French Cretaceous, F. **Ellenberger**, Lemoine & **Sigal**; Aptian foraminifera in Russia, G. I. **Blorn**; *Gublerina* in the Cretaceous, I. de **Klasz** (2); *Globotruncana* in Bavaria I. de **Klasz** (3); *Globotruncana* in the Danish Cretaceous, J. C. **Troelsen** (3); *Globotruncana* in the Hungarian Cretaceous, D. **Nedela-Devidé**; *Globotruncana* in Italy, M. **Moncharmont Zei** (2); *Shackoina* in the Italian Cretaceous, E. M. **Gallitelli**; Upper Cretaceous and Paleocene foraminifera of the Central Carpathians, K. **Birkenmajer**;

Cretaceous foraminifera of Campbell Island, H. J. **Finlay** (1); Dis-

tribution of *Dictyoconus walnutensis* (Carsez) in the Alban, W. **Maync** (2); *Bolivinoidea* in the Cretaceous, J. **Hofker** (3).

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†*Baculogypsina*; systematics thereof, S. Hanzawa (1).

†*Baggatella altuiscula, divulgata, latiaperta*, spp. n. (p. 606), [nom. nud.] Tertiary, Poland, N. N. Subbotina, V. V. Glushko, & L. S. Pishvanova.

†*Baggina notoensis* sp. n. (p. 10), Miocene, Japan, K. Asano (3).

†*Bifarina tonohamaensis* sp. n. (p. 32) Tertiary, Japan, Y. Takayanagi (2).

†*Birbalina* gen. n. *pulchra* sp. n. (p. 187) [nom. nud.] ? Cretaceous, India, M. R. Sahni.

†*Boultonia*; systematics thereof, K. Konishi (2); †*B. heezeni* sp. n. (p. 32) [authorship to Thompson & Hansen] Wolfcampian, U.S.A., M. L. Thompson; †*B. truncata* sp. n. (p. 107), Upper Palaeozoic, Siam, K. Konishi (2).

†*Bolivina angusta, subdilata*, sp. n. (p. 606) [nom. nud.] Tertiary, Poland, N. N. Subbotina, V. V. Glushko & L. S. Pishvanova; *B. cuomi* sp. n. (p. 196), Recent, Argentine coast, E. Boltovskoy (1); †*B. daggarius* nom. n. (p. 52) [for *Bolivina lanceolata* Parker 1954 (*non* Allia 1952)], F. L. Parker (2); †*B. firma* sp. n. (p. 72) Cretaceous, Holland, J. Hofker (3); †*B. marginata* subsp. n. *masudui* (p. 10) Miocene Japan, K. Asano (3); *B. petterssoni* sp. n. (p. 36), North Atlantic, F. B. Phleger, Parker & Peirson; †*B. villalverniensis* sp. n. (p. 174), Pliocene, Italy, B. Martinis (2); †*B. yabei* sp. n. (p. 31) Tertiary, Japan, Y. Takayanagi (2).

†*Brotzenia* **gen. n.** (p. 169) (genotype *Epistomina spinulifera* Reuss); *B. parastelligera* **sp. n.** (p. 180); J. Hofker (1).

†*Bulimina aquafrescaensis* **sp. n.** (p. 22), Eocene, Chile, R. Todd & H. I. Kniker; †*B. arndti* **sp. n.** (p. 168), Oligocene, Bavaria, H. Hagn & O. Hölzl (1); †*B. crenata, virguliniformis, fissura* **spp. n.** (p. 14) Paleocene Peru, L. Weiss (2); †*B. jarvisi* **var. n. misrensis** (p. 88) Upper Eocene, Egypt, S. E. Ansary; *B. kochiensis* (p. 31) Tertiary, Japan, Y. Takayanagi (2); †*B. simplex* **var. n. colwellensis** (p. 680), Eocene, England, S. B. Bhatia; †*B. striata* **subsp. n. notoensis** (p. 11), Miocene, Japan, K. Asano (3); *B. translucens* **sp. n.** (p. 33), North Atlantic, F. B. Phleger, Parker & Peirson; †*B. wyomingensis* **sp. n.** (p. 118) Cretaceous, Wyoming, S. K. Fox.

†*Buliminella apenninica* **sp. n.** (p. 113) Oligocene, Italy, C. Emiliani (1); †*B. carteri* **sp. n.** (p. 678), Eocene, England, S. B. Bhatia.

†*Camerina saipanensis* **sp. n.** (p. 20) Eocene, Saipan, W. S. Cole & J. Bridge.

†*Carterina*, emendation thereof, (p. 27), A. R. Loeblich & H. Tappan (2).

†Carterinidae **fam. n.** (p. 27), A. R. Loeblich & H. Tappan (2).

†*Cassidulina kattoi* **sp. n.** (p. 34) Tertiary, Japan, Y. Takayanagi (2).

†*Cassidulinoides bodeni* **sp. n.** (p. 181), Oligocene, Bavaria, H. Hagn & O. Hölzl (1).

†*Caucasina tenebricosa* **sp. n.** (p. 606) [nom. nud.] Tertiary, Poland, N. N. Subbortina, V. V. Glushko, & L. S. Pishvanova.

†*Ceratobulimina*; status thereof, J. C. Troelsen (2); †*C. cheylani* **sp. n.** (p. 486), Miocene, Algeria, G. Cheylan, Magné, Sigal & Grekoff.

†*Chilostomella polsoni* **sp. n.** (p. 17), Paleocene, Peru, L. Weiss (2).

†*Choffatella sogamozae* (Karsten) Petters 1954; status thereof, W.

Maync (5); †*C. stenzeli* Stead 1951; status thereof, W. Maync (5); †*C. zireggensis* **sp. n.** (p. 12) Cretaceous, Algeria, J. Sigal (1); †*C. zireggensis* Sigal 1952; validity thereof, W. Maync (5).

†*Cibicides djaffaensis* **sp. n.** (p. 14) Cretaceous, Algeria, J. Sigal (1); *C. kullenbergi* **sp. n.** (p. 49), North Atlantic, F. B. Phleger, Parker & Peirson; †*C. micrus* **var. n. pusillus** (p. 250), Eocene, Italy, F. P. Decima & F. Ferasin; †*C. ungerianus* (d'Orbigny) **var. n. filicosta** (p. 186), Oligocene, Bavaria, H. Hagn & O. Hölzl (1); †*C. yabei* **sp. n.** (p. 43) Paleogene, Japan, K. Asano (1).

†*Clavulina auriculostoma* **sp. n.** (p. 16), Eocene, France, Y. Le Calvez.

†*Clavulinoides chileana, brunswickensis* **spp. n.** (p. 11), Eocene, Chile, R. Todd & H. I. Kniker.

†*Codonofusiella extensa* **sp. n.** (p. 930), Permian, West Texas, J. W. Skinner & G. L. Wilde.

†*Colomia orthostoma* **sp. n.** (p. 225), Cretaceous, Bavaria, I. de Klasz (1).

†*Cornuspira cushmani* **sp. n.** (p. 13) Eocene, Chile, R. Todd & H. I. Kniker.

†*Corrosina* **gen. n.** (p. 68) *pupoides* **sp. n.** (p. 69) Oligocene, Hungary, R. M. Nyirő.

†*Coskinolina sunnilandensis* **sp. n.** (p. 106), Lower Cretaceous, Venezuela W. Maync (3).

†*Crespinina* **gen. n.**, (p. 45) *kingscotensis* **sp. n.** (p. 46) (genotype), Tertiary, Australia, M. Wade.

†*Cristellaria ouachensis* **sp. n.** (p. 16) Cretaceous, Algeria, J. Sigal (1).

†*Cyclammina apenninica* **sp. n.** (p. 117) Oligocene, Italy, C. Emiliani (1); †*C. japonica* **subsp. n. kaiensis** (p. 202), Miocene, Japan, O. Fukuda & R. Shinogi.

†*Dagmarella* **gen. n.** (p. 945) *prima* **sp. n.** (p. 946) (genotype) Carboniferous, Russia, M. N. Solovyeva (3).

Darbyella argentinensis **sp. n.** (p. 144) Argentine coast, Recent, E. Boltovskoy (1); †*D. tosaensis* **sp. n.**

(p. 29), Tertiary, Japan, Y. Takanagi (2).

†*Daviesina* gen. n. (p. 66) *khatiyahi* sp. n. (p. 67) (genotype); *D. langhami* sp. n. (p. 68); *D. danieli* sp. n. (p. 69); Lower Tertiary, Qatar, A. H. Smout (1).

†*Dentalina bighornensis* sp. n. (p. 116) Cretaceous, Wyoming, S. K. Fox; †*D. cineraria* sp. n. (p. 119), Oligocene, Italy, C. Emiliani (1); †*D. elgansoensis* sp. n. (p. 15); *D. patagonica* sp. n. (p. 16), Eocene, Chile, R. Todd & H. I. Kniker.

†*Dictyoconus mosae* sp. n. (p. 115) Cretaceous, Holland, J. Hofker (3); †*D. walnutensis* (Carsey); systematics thereof, W. Maync (2).

†*Dictyokathina* gen. n. (p. 64) *simplex* sp. n. (p. 65) (genotype); Lower Tertiary, Qatar, A. H. Smout (1).

†*Discopulvinulina cushmani* nom. n. (p. 128) (for *Hanzawaia concentrica* (Cushman)), J. Hofker (4).

†*Discorbis bembriidensis* sp. n. (p. 682), Eocene, England, S. B. Bhatia; †*D. djaffaensis* sp. n. (p. 17) Cretaceous, Algeria, J. Sigal (1); †*D. herouvalensis* sp. n. (p. 506), Eocene, France, Y. Le Calvez & L. Feugueur; *D. laquei* sp. n. (p. 375), Californian coast, C. C. Church.

†*Dorothia*; status thereof, R. N. C. Bowen (3); †*D. ashiyaensis* sp. n. (p. 61) Palaeogene, Japan, S. Murata (7); †*D. kaskapauensis* sp. n. (p. 36); *D. k.* var. n. *gracilis* (p. 37) Cenomanian, Canada, C. R. Stelck & J. H. Wall; †*D. pupa* (Reuss, 1860) var. *britannica* nom. n. (p. 53) Barnard & Banner [for *D. p.* (Reuss, 1860) var. *tenuis* Barnard & Banner 1953 (non *D. tenuis* Bermudez 1949)], H. E. Thalmann (1); †*D. vulsa* sp. n. (p. 120), Oligocene, Italy, C. Emiliani (1).

†*Dunbarinella fivensis* sp. n. (p. 44); *D. americana* sp. n. (p. 45); *D. eoextenta* sp. n. (p. 46); *D. extenta* sp. n. (p. 47); *D. hughesensis*, *glenensis* spp. n. (p. 48); *D. wetherensis* sp. n. (p. 49); Wolfcampian, U.S.A. M. L. Thompson.

†*Earlandia pulchra* sp. n. (p. 228) Carboniferous, Scotland, R. H. Cummings (1).

†*Earlandiidae* fam. n. (p. 227), Palaeozoic, R. H. Cummings (1).

†*Earlandinella* gen. n. (p. 229) (genotype *Nodosinella cylindrica* Brady 1876) Carboniferous, Britain, R. H. Cummings (1).

†*Earlandinita* gen. n. (p. 230) (genotype *Nodosinella perelegans* Plummer 1930) Carboniferous, R. H. Cummings (1).

†*Eggerella pulcherella* sp. n. (p. 248) Eocene, Italy, F. P. Decima & F. Ferasin; †*E. mystica* sp. n. (p. 121), Oligocene, Italy, C. Emiliani (1).

†*Ehrenbergina insueta* sp. n. (p. 249) Eocene, Italy, F. P. Decima & F. Ferasin; *E. undulata* sp. n. (p. 46), North Atlantic, F. B. Phleger, Parker, & Peirson.

†*Elphidiella multiscissurata* sp. n. (p. 208) Cretaceous, Arabia, A. H. Smout (2).

†*Elphidium* (?) *ellisi* sp. n. (p. 159), Pleistocene, New York, L. Weiss (1); †*E. hiltermanni* sp. n. (p. 163), Oligocene, Bavaria, H. Hagn & O. Hölzl (1); †*E. koberi* sp. n. (p. 198), Tortonian, Austria, A. Tollmann (1); †*E. morenoi* subsp. n. *ameghinoi* (p. 277), Recent, Argentina, E. Boltovskoy (2); †*E. skyringense*, *patagonicum* spp. n. (p. 18); *E. aquafrescaense*, *chilenum*, *lauritaense* spp. n. (p. 19); Eocene, Chile, R. Todd & H. I. Kniker; †*E. ? toddae* nom. n. (p. 82) Petri [for *Elphidium*? *limbatum* Petri 1954], H. E. Thalmann (2).

†*Enantiomarginulina similis* sp. n. (p. 340); *E. enigmata* sp. n. (p. 341), Cretaceous, Texas, F. J. Bullard.

†*Endothyranopsis* gen. n. (p. 1). [genotype *Involutina crassa* Brady 1869], Lower Carboniferous, Britain, R. H. Cummings (2).

†*Entosolenia fukamiensis* sp. n. (p. 12) Miocene, Japan, K. Asano (3); †*E. tokaoi* sp. n. (p. 48) Miocene, Japan, K. Asano (2).

†*Eofabiania* gen. n. (p. 135) *grahami* sp. n. (p. 136) (genotype), Eocene, Venezuela, K. Küpper (2).

†*Epistomariidae*; revision thereof, J. Hofker (1).

†*Epistomina auresensis* sp. n. (p. 8) Cretaceous, Algeria, J. Sigal (1); †*E. djaffaensis* sp. n. (p. 14) Cretaceous, Algeria, J. Sigal (1); †*E. nuda* var. n. *vulgaris* (p. 199); *E. stelicostata* sp. n. (p. 200); *E. S. var. n. granulosa* (p. 200); Jurassic, Poland, W. Bielecka & W. Pozaryski.

Epistominella vitrea sp. n. (p. 9), Gulf of Mexico, F. L. Parker (1).

†*Eponides gaviotaensis* sp. n. (p. 143) Oligocene, California, E. J. Wilson; †*E. involuta* sp. n. (p. 115) Cretaceous, Holland, J. Hofker (3); *E. peruvianus* subsp. n. *campsi* (p. 205), Recent, Argentine coast, E. Boltovskoy (1); †*E. shoshonensis* sp. n. (p. 119) Cretaceous, Wyoming, S. K. Fox; †*E. (Conorbis) polonicus* sp. n. (p. 198); Jurassic, Poland, W. Bielecka & W. Pozaryski; †*E. marcida* sp. n. (p. 124), Oligocene, Italy, C. Emiliani (1).

†*Fabiania saipanensis* sp. n. (p. 28) Eocene, Saipan, W. S. Cole & J. Bridge.

†*Fissoelphidium* gen. n. (p. 208) *operculiferum* sp. n. (p. 209) [genotype] Cretaceous, Arabia, A. H. Smout (2).

†*Fissurina latemarginata* sp. n. (p. 227), Cretaceous, Bavaria, I. de Klsaz (1).

†*Flabellamina irenensis* sp. n. (p. 38); *F. kaskapauensis* sp. n. (p. 39) *F. warreni* sp. n. (p. 40); *F. webbi* sp. n. (p. 41) Cenomanian, Canada, C. R. Stelck & J. H. Wall.

†*Flabellina gahannamensis* sp. n. (p. 28), Upper Eocene, Egypt, S. E. Ansary.

†*Flintina subglobosa* sp. n. (p. 27) Tertiary, Japan, Y. Takayanagi (2).

†*Fourstonella* gen. n. (p. 6) [genotype *Stacheia fusiformis* Brady 1876], Lower Carboniferous, Britain, R. H. Cummings (2).

†*Frankeina kimeridensis* sp. n. (p. 162), Jurassic, Poland, W. Bielecka & W. Pozaryski.

†*Fronicularia delfaensis* sp. n. (p. 40), Cretaceous, Algeria, J. Sigal (1); †*F. greybullensis* sp. n. (p. 118) Cretaceous, Wyoming, S. K. Fox;

†*F. notoensis* sp. n. (p. 12), Miocene, Japan, K. Asano (3); †*F. schaffeni* sp. n. (p. 27), Oligocene, Germany, H. Friese; †*F. tosaensis* sp. n. (p. 29) Tertiary, Japan, Y. Takayanagi (2); †*Fronicularia palegredensis* sp. n. (p. 11), Paleocene, Peru, L. Weiss (2).

†*Fusulina akiyoshiensis* sp. n. (p. 49) [nom. nud.], Upper Palaeozoic, Japan, R. Toriyama (2); †*F. attenuata* sp. n. (p. 23); *F. equabilis* sp. n. (p. 24); *F. equilaqueata* sp. n. (p. 26); *F. expedita* sp. n. (p. 27); *F. occultifrons* sp. n. (p. 40); *F. plena* sp. n. (p. 41); *F. tumida* sp. n. (p. 43), Carboniferous. Oklahoma, R. D. Alexander.

†*Fusulinella derelicta* sp. n. (p. 16), Upper Palaeozoic, Indochina, E. Saurin (1); †*F. subspherica* sp. n. (p. 49) [nom. nud.] Upper Palaeozoic Japan, R. Toriyama (2).

†Fusulinidae; systematics thereof, D. M. Rauser-Chernoussova & S. E. Rozovskaya.

†*Gaudryina*; emendation thereof, R. N. C. Bowen (3); †*G. ashiyaensis* sp. n. (p. 61) Palaeogene, Japan, S. Murata (7); †*G. chettabaensis* sp. n. (p. 11) Cretaceous, Algeria, J. Sigal (1); †*G. chiliana*, *brunswickensis* spp. n. (p. 10), Eocene, Chile, R. Todd & H. I. Kniker; †*G. cobbani* sp. n. (p. 112) Cretaceous, Wyoming, S. K. Fox; †*G. irenensis* sp. n. (p. 42) *G. spiritensis* sp. n. (p. 43); Cenomanian, Canada, C. R. Stelck & J. H. Wall.

†*Gavelinella umbilicatifformis* sp. n. (p. 120) Cretaceous, Holland, J. Hofker (3).

†*Globalternina globolocolata* sp. n. (p. 606) [nom. nud.] Tertiary, Poland, N. N. Subbotina, V. V. Glushko & L. S. Pishvanova.

†*Globigerina brevispira*, *pseudoedita* spp. n. (p. 606) [nom. nud.] Tertiary Poland, N. N. Subbotina, V. V. Glushko, & L. S. Pishvanova; †*G. druryi* sp. n. (p. 654), Miocene, Louisiana, W. H. Akers; †*G. paradoxia*, *aumalensis* spp. n. (p. 28), Cretaceous, Algeria, J. Sigal (1); †*G. patagonica* sp. n. (p. 26), Eocene, Chile, R. Todd & H. I. Kniker; †*G.*

stonei sp. n. (p. 18), Paleocene, Peru, L. Weiss (2).

†*Globigerinella aissana* sp. n. (p. 28) Cretaceous, Algeria, J. Sigal (1); †*G. evoluta, praemicra* spp. n. (p. 606) [nom. nud.] Tertiary, Poland, N. N. Subbotina, V. V. Glushko & L. S. Pishvanova.

†*Globigerinita incrusta* sp. n. (p. 655), Miocene, Louisiana, W. H. Akers.

†*Globoquadrina larmeyi, obesa* spp. n. (p. 661) Miocene, Louisiana, W. H. Akers.

†*Globorotalia canariensis* var. n. minima (p. 659), Miocene, Louisiana, W. H. Akers; †*G. (Truncorotalia) mosae* sp. n. (p. 99), Cretaceous, Holland, J. Hofker (3); †*G. (?) youngi* sp. n. (p. 119) Cretaceous, Wyoming, S. K. Fox; †*Globorotalia whitei* sp. n. (p. 18), Paleocene, Peru, L. Weiss (2).

†*Globorotalites ouachensis, djaffaensis* spp. n. (p. 19), Cretaceous, Algeria, J. Sigal (1).

†*Globotruncana*; systematics thereof, F. Dalbiez; †*G. andori* sp. n. (p. 233), Cretaceous, Bavaria, I. de Klsasz (1); †*G. lobata* sp. n. (p. 43), Cretaceous, Bavaria, I. de Klsasz (3); †*G. schneegansi* sp. n. (p. 33); *G. asymetrica* sp. n. (p. 35); *G. lamellosa* sp. n. (p. 42); *G. falsostuarti* sp. n. (p. 43); Cretaceous, Algeria, J. Sigal (1); †*G. (Globotruncana) ventricosa* subsp. n. *primitiva, carinata* (p. 168) *G. (G.) v. subsp. b. stuartiformis* (p. 169); Cretaceous, Tunisia, F. Dalbiez.

†*Globulina fistulosa* sp. n. (p. 342); *G. immobilis* sp. n. (p. 343); Cretaceous, Texas, F. J. Bullard.

†*Glomospira charoides* var. n. *extendens* (p. 133); *G. favilla* sp. n. (p. 133), Oligocene, Italy, C. Emiliani (1).

†*Gubkinella* gen. n. *asiatica* sp. n. (p. 623) Senonian, Russia, I. S. Suleimanov.

†*Gublerina acuta* sp. n. (p. 246); *G. a. subsp. n. robusta* (p. 247); Cretaceous, Bavaria, I. de Klsasz (2).

†*Gümbelina barnardi* sp. n. (p. 77), Upper Eocene, Egypt, S. E. Ansary;

†*G. dagmarae* sp. n. (p. 624), Senonian Russia, I. S. Suleimanov; †*G. deflaensis* sp. n. (p. 36), Cretaceous Algeria, J. Sigal (1).

†*Gümbelitra oveyi* sp. n. (p. 79) Upper Eocene, Egypt, S. E. Ansary.

†*Guttulina expolita* sp. n. (p. 341), Cretaceous, Texas, F. J. Bullard.

†*Gyroidina barbarica, gothica* spp. n. (p. 135); *G. medicea* sp. n. (p. 136), Oligocene, Italy, C. Emiliani (1); †*G. depressa* subsp. n. *parvula* (p. 16), Paleocene, Peru, L. Weiss (2); †*G. aegyptiaca* sp. n. (p. 106) Upper Eocene, Egypt, S. E. Ansary.

†*Hanzawaia*; status thereof, J. Hofker (4).

†*Haplophragmoides carlilensis* sp. n. (p. 110) Cretaceous, Wyoming, S. K. Fox; †*H. chilenum* sp. n. (p. 6) Eocene, Chile, R. Todd & H. I. Kniker; †*H. collyra* var. n. *bahani* (p. 45); *H. c. var. n. bullocki* (p. 46); *H. crickmayi* sp. n. (p. 47); *H. eocalcula* sp. n. (p. 49); *H. neolinki* sp. n. (p. 50); *H. pacalis* sp. n. (p. 51) Cenomanian, Canada, C. R. Stelck & J. H. Wall; †*H. etrusca* sp. n. (p. 139), Oligocene, Italy, C. Emiliani (1).

†*Hastigerinella simplicissima* sp. n. (p. 487), Cretaceous, Algeria, G. Cheylan, Magné, Sigal & Grekoff.

†*Heronallenia stellata* sp. n. (p. 32), Tertiary, Japan, Y. Takayanagi (2).

†*Heterostegina saipanensis* sp. n. (p. 23) Eocene, Saipan, W. S. Cole & J. Bridge.

†*Heterostomella chettabaensis* sp. n. (p. 11) Cretaceous, Algeria, J. Sigal (1).

†*Hiltermannia* gen. n. (p. 169) (genotype *Epistomina chapmani* Ten Dam), J. Hofker (1).

†*Höglundina rupeliensis* sp. n. (p. 199) (Eocene); *H. minimalis* sp. n. (p. 200) (Oligocene); *H. miocenica* (p. 200) (Miocene), *H. mediterranea* sp. n. (p. 202) (Recent); J. Hofker (1).

†*Hopkinsina bortotara* var. n. *aegyptiaca* (p. 91) Upper Eocene, Egypt, S. E. Ansary.

†*Hukawngia* **gen. n.** (p. 384) *problematica* **sp. n.** (p. 385) (genotype) Cretaceous, Burma, M. R. Sahni & V. V. Sastri.

†*Hyperammina*; status thereof, R. H. Cummings (1); †*H. pristis* **sp. n.** (p. 143), Oligocene, Italy, C. Emiliani (1).

†*Hyperamminoides*; status thereof, R. H. Cummings (1).

Involvothauerina **gen. n.** (p. 14) *globularis* **sp. n.** (p. 15) (genotype) Recent, A. R. Loeblich & H. Tappan (2).

†*Irrawaddia* **gen. n. trigonalis** **sp. n.** (p. 384) (genotype), Burma; †*tibetica* **sp. n.** (p. 385), Tibet; both Cretaceous, M. R. Sahni & V. V. Sastri.

†*Irregularina granda* **sp. n.** (p. 891) [nom. nud.] Devonian, U.S.S.R., S. S. Kuznetzov & A. D. Miklukho-Maklai.

†*Karrerella marina* **sp. n.** (p. 248); *K. termalis* **sp. n.** (p. 249); Eocene, Italy, F. P. Decima & F. Ferasin; †*K. siphonella* (Reuss) **var. n. exilis** (p. 139), Oligocene, Bavaria, H. Hagn & O. Hölzl (1).

†*Kathina* **gen. n. delseota** **sp. n.** (p. 61) (genotype); *K. selveri* **sp. n.** (p. 62); *K. major* **sp. n.** (p. 63); Lower Tertiary, Qatar, A. H. Smout (1).

†*Kettnerammina* **gen. n.** (p. 3) *givetiana* **sp. n.** (p. 4) (genotype); *K. (?) mesodevonica* **sp. n.** (p. 5); Devonian, Czechoslovakia, V. Pokorný (2).

†*Kutarungia* **gen. n. cretacea** **sp. n.** (p. 384) (genotype) Cretaceous, Burma, M. R. Sahni & V. V. Sastri.

†*Kyatsokia* **gen. n. tibetica** **sp. n.** (p. 385) (genotype); *K. multilocularis* **sp. n.** (p. 386); Cretaceous, Tibet, M. R. Sahni & V. V. Sastri.

†*Lagena terquemi* **nom. n.** (p. 38) [for *Lagena hixtrix* Terquem 1882], Eocene, France, Y. Le Calvez.

†*Lagenammina minima* **sp. n.** (p. 891) [nom. nud.] Devonian, U.S.S.R. S. S. Kuznetzov & A. D. Miklukho-Maklai.

†*Lagenonodosaria scalaris* (Butsch) **var. n. cuneensis** (p. 171), Pliocene, Italy, B. Martinis (2).

†*Lamarckinita* **nom. n.** (p. 119) [for *Rutenella* Keyzer 1953 (non van den Bold 1946)] Mio-Pliocene, Indonesia, F. G. Keyzer.

†*Lenticulina vistulae* **sp. n.** (p. 167); *L. v.* **var. n. elongata** (p. 168); Jurassic, Poland, W. Bielecka & W. Pozaryski.

†*Lepidocyclina* (*Eulepidina*) *bridgei* **sp. n.** (p. 34); *L. (E.) saipanensis* **sp. n.** (p. 37); Miocene, Saipan, W. S. Cole & J. Bridge.

†*Lepidolina* ? *gigantea* **sp. n.** (p. 181), Permian, Japan, R. Toriyama (3).

†*Lingulina*; review thereof, A. Tollmann (2); †*L. costata* **subsp. n. tricarinata** (p. 611); *L. c.* **subsp. n. cylindrica** (p. 612); *L. levis* **sp. n.** (p. 614); Miocene, Austria, A. Tollmann (2); †*L. fugoshiensis* **sp. n.** (p. 12) Miocene, Japan, K. Asano (3).

†*Lingulinopsis*; review thereof, A. Tollmann (2); †*L. koberi* **sp. n.** (p. 617) Miocene, Austria, A. Tollmann (2).

†*Lockhartia prehaimeae*, *altispira* **spp. n.** (p. 51); *L. diversa* **sp. n.** (p. 52); *L. conica* **sp. n.** (p. 53); *L. huntii* **var. n. pustulosa** (p. 54); Lower Tertiary, Qatar, A. H. Smout (1).

†*Loeblichia* **gen. n.** (p. 3) [genotype *Endothyra ammonoides* Brady 1873] Lower Carboniferous, Britain, R. H. Cummings (2).

†*Loeblichinae* **subfam. n.** (p. 3), Lower Carboniferous, Britain, R. H. Cummings (2).

†*Loxostomum burgeri* **sp. n.** (p. 485) Miocene, Algeria, G. Cheylan, Magné, Sigal & Grekoff; †*L. chalkophilum* **sp. n.** (p. 172), Oligocene, Bavaria, H. Hagn & O. Hölzl (1); †*L. ozawai* **sp. n.** (p. 32) Tertiary, Japan, Y. Takayanagi (2).

†*Lugtonia* **gen. n.** (p. 321) (genotype *Nodosinella concinna* Brady 1876); *L. minima* **sp. n.** (p. 232); *L. inflata*, *elongata* **spp. n.** (p. 233);

Carboniferous, Britain, R. H. Cummings (1).

†*Marginulina adunca* subsp. n. *aquilina* (p. 10), Paleocene, Peru, L. Weiss (2); †*M. ashiyaensis* sp. n. (p. 61) Palaeogene, Japan, S. Murata (7); †*M. buskensis* sp. n. (p. 186); Jurassic, Poland, W. Bielecka & W. Pozaryski; †*M. masudai* sp. n. (p. 12), Miocene, Japan, K. Asano (3); †*M. nuttalli* nom. n. (p. 14) [for *Cristellaria subtilius* Nuttall 1932], Eocene, Chile, R. Todd & H. I. Kniker.

†*Marginulinopsis djaffaensis* sp. n. (p. 15) Cretaceous, Algeria, J. Sigal (1).

†*Marssonella ouachensis* sp. n. (p. 19), Cretaceous, Algeria, J. Sigal (1).

Massilina protea sp. n. (p. 10), Gulf of Mexico, F. L. Parker (1).

†*Meandrospira djaffaensis* sp. n. (p. 17) Cretaceous, Algeria, J. Sigal (1).

†*Mesania* gen. n. *vermiforme* sp. n. (p. 385) (genotype) Cretaceous, Burma; *M. kutaungensis* sp. n. (p. 385) Cretaceous, Burma; *M. tibetica* sp. n. (p. 385) Cretaceous, Tibet; M. R. Sahni & V. V. Sastri.

†*Miliammina*; emendation thereof (p. 12), A. R. Loeblich & H. Tappan (2).

†*Millerella japonica* sp. n. (p. 170); *M. gigantea* sp. n. (p. 172); Carboniferous, Japan, K. Kanmera (3).

†*Miscellanea miscella* var. n. *dukhani* (p. 73); Lower Tertiary, Qatar, A. H. Smout (1).

†*Moravammina* gen. n. (p. 7) *segmentata* sp. n. (p. 8) (genotype) Devonian, Czechoslovakia, V. Pokórny (2).

†*Moravammininae* subfam. n. (p. 7), Devonian, Czechoslovakia, V. Pokórny (2).

†*Nankinella nagatoensis* sp. n. (p. 53) [nom. nud.], Upper Palaeozoic, Japan, R. Toriyama (2).

†*Neobulimina varsoviensis* sp. n. (p. 194); Jurassic, Poland, W. Bielecka & W. Pozaryski.

†*Neoschwagerina caucasica* sp. n. (p. 138) [authorship to Dutkevich]; *N. djakonowae* sp. n. (p. 142); Upper Palaeozoic, Caucasus, E. N. Dyakonova-Savelyeva.

†*Nodosaria cornus* nom. n. (p. 147) (for *N. corniculum* Costa 1856), Oligocene, Italy, C. Emiliani (1); †*N. notoensis* sp. n. (p. 13) Miocene, Japan, K. Asano (3); †*N. subcanaliculata* (Neugeboren) var. *neospinescens* nom. n. (p. 120) [for *N. s.* (Neugeboren) var. *spinescens* Bowen 1954], Eocene, England, R. N. C. Bowen (2).

†*Nodosinella*; emendation thereof, R. H. Cummings (1).

†Nodosinellidae; emendation thereof, R. H. Cummings (1).

†*Nonion fayoumensis* sp. n. (p. 68); *N. maadiensis* sp. n. (p. 69); *N. trompi* sp. n. (p. 73); Upper Eocene, Egypt, S. E. Ansary; †*N. laeve* var. n. *subexcaratum* (p. 678) Eocene, England, S. B. Bhatia; †*N. pauciloculum* subsp. n. *albiumbilicatum* (p. 157) Pleistocene, New York, L. Weiss (1).

†*Nonionella laffitei* sp. n. (p. 483), Miocene, Algeria, G. Cheylan, Magné, Sigal & Grekoff; †*N. liebusi* sp. n. (p. 161), Oligocene, Bavaria, H. Hagn & O. Hölzl (1); *N. miocenica* subsp. n. *gagarini* (p. 169), Recent, Argentine coast, E. Boltovskoy (1).

†*Nubecularia mazoviensis* sp. n. (p. 163), Jurassic, Poland, W. Bielecka & W. Pozaryski.

†*Nummulites*; systematics thereof G. I. Nemkov.

†*Oinomikadoina* gen. n. (p. 163) *ogiensis* sp. n. (p. 163) (genotype), Pliocene, Japan, T. Matsunaga.

†*Oketaella waldripensis* sp. n. (p. 35) *O. campensis* sp. n. (p. 36); *O. cheneyi* sp. n. (p. 37); Permian, U.S.A., M. L. Thompson.

†*Operculinoides georgianus* nom. n. (p. 6) [for *Miscellanea soldadensis* Vaughan & Cole 1941 (non *Operculinoides soldadensis* Vaughan & Cole 1941)] Paleocene, Georgia, W. S. Cole & S. M. Herrick.

†*Orbitoides media* subsp. n. *planiformis* (p. 304), Campanian; *O. apiculata* subsp. n. *grünbachensis* (p. 305), Maastrichtian; Central Europe, A. Papp (1).

†*Orbitolina chitralensis*, *kashmirica*, *obesa*, *raoi*, *wadiar*, *hukaungensis* spp. n. (p. 187) [all nom. nud.] Cretaceous, India, M. R. Sahni.

†*Orientoschwagerina* gen. n. *abichi* sp. n. (p. 573) (genotype) Lower Permian, U.S.S.R., A. D. Miklukho-Maklaï.

†*Osangularia brunswickensis* sp. n. (p. 24), Eocene, Chile, R. Todd & H. I. Kniker.

†*Ozawainella akiyoshiensis* sp. n. (p. 52) [nom. nud.], Upper Palaeozoic, Japan, R. Toriyama (2); †*O. (?) inflata* sp. n. (p. 31) Wolfcampian, U.S.A., M. L. Thompson; †*O. pisolithica* sp. n. (p. 10), Upper Palaeozoic, Indochina, E. Saurin (1).

†*Pachyphloia caucasica*, *teberdaensis* spp. n. (p. 148) [authorship to Dutkevich] Upper Palaeozoic, Caucasus, E. N. Dyakonova-Savelyeva.

†*Pandaglandulina* gen. n. *dinapoli* sp. n. (p. 7) (genotype) A. R. Loeblich & H. Tappan (1).

†*Paraarchaediscus* gen. n. *dubitabilis* sp. n. (p. 621) (genotype) Carboniferous, Russia, I. N. Orlova.

†*Paradoxiella* gen. n. (p. 934) *pratti* sp. n. (p. 935), Permian, West Texas, J. W. Skinner & G. L. Wilde.

†*Pararotalia subinermis* sp. n. (p. 683), Eocene, England, S. B. Bhatia.

†*Paratextularia* gen. n. (p. 20) (genotype *Textularia* (?) *proboscidea* Cushman & Stainbrook 1943), Devonian, V. Pokórny (2).

†*Paraverbeekina* gen. n. *pontica* sp. n. (p. 574) (genotype) Lower Permian, U.S.S.R. A. D. Miklukho-Maklaï.

†*Parrella cheniourensis* sp. n. (p. 27) Cretaceous, Algeria, J. Sigal (1).

†*Planctostoma* gen. n. (p. 8) (genotype *Textularia luculenta* Brady 1884) Recent, A. R. Loeblich & H. Tappan (2).

†*Planulina cheniourensis* sp. n. (p. 20), Cretaceous, Algeria, J. Sigal (1); †*P. convexa* sp. n. (p. 34), Tertiary, Japan, Y. Takayanagi (2); †*P. dakotensis* sp. n. (p. 119) Cretaceous, Wyoming, S. K. Fox; †*P. poronaiensis* sp. n. (p. 42) Paleogene, Japan, K. Asano (1); †*P. synaensis* sp. n. (p. 129) Upper Eocene, Egypt, S. E. Ansary; †*P. nipponica* sp. n. (p. 13) Miocene, Japan, K. Asano (3).

†*Plectina poronaiensis* sp. n. (p. 33) Paleogene, Japan, K. Asano (1).

†*Plectofrondicularia hoststriata* sp. n. (p. 165), Miocene, Bavaria, H. Hagn & O. Hölzl (1).

†*Pleurostomella aquafrescaensis* sp. n. (p. 23), Eocene, Chile, R. Todd & H. I. Kniker.

†*Polyphragma codyensis* sp. n. (p. 113) Cretaceous, Wyoming, S. K. Fox.

†*Polysegmentina*; emendation thereof, (p. 16), Loeblich & H. Tappan (2).

†*Profusulinella beppensis* sp. n. (p. 46) [nom. nud.] Upper Palaeozoic Japan, R. Toriyama (2).

†*Proteonina*; emendation thereof (p. 7), A. R. Loeblich & H. Tappan (2).

†*Pseudedomia*; re-definition thereof, F. E. Eames & A. H. Smout; †*P. complanata* sp. n. (p. 505) Cretaceous, Middle East, F. E. Eames & A. H. Smout.

†*Pseudoclavulina euganea* sp. n. (p. 247) Eocene, Italy, F. P. Decima & F. Ferasin.

†*Pseudofusulina robleda* sp. n. (p. 68); *P. loringi* sp. n. (p. 69); *P. (?) moranensis* sp. n. (p. 69); *P. nelsoni* subsp. n. *opima* (p. 70); Wolfcampian, U.S.A., M. L. Thompson; †*P. subtenuis* sp. n. (p. 81); *P. laevicula* sp. n. (p. 87); *P. l. var. n. expansa* (p. 88); *P. vulgaris* var. n. *horiquchii* (p. 90); Permian, Japan, R. Morikawa (4); †*P. vulgaris* var. n. *megasphaerica* (p. 51); *P. globosa* var. n. *exilis* (p. 51); *P. isaensis* sp. n. (p. 51); *P. krafftii* var. n. *magna* (p. 51); [all nom. nud.], Upper Palaeozoic, Japan, R. Toriyama (2).

†*Pseudofusulinella utahensis* sp. n. (p. 34) [authorship to Thompson & Bissell] Wolfcampian, U.S.A., M. L. Thompson.

†*Pseudoglandulina* Cushman 1929; suppression thereof, (p. 2), A. R. Loeblich & H. Tappan (1); †*P. synaensis* sp. n. (p. 55) Upper Eocene, Egypt, S. E. Ansary.

†*Pseudoparrella molassica* sp. n. (p. 180), Oligocene, Bavaria, H. Hagn & O. Hölzl (1); †*P. oveyi* sp. n. (p. 684), Eocene, England, S. B. Bhatia.

†*Pseudorbitoides* Douvillé 1922; emendation thereof, P. Brönnimann (2); †*P. ruteni* sp. n. (p. 68), Upper Cretaceous, Cuba, P. Brönnimann (2).

†Pseudorbitoididae; systematics thereof, P. Brönnimann (2).

†*Pseudoschwagerina needhami* sp. n. (p. 72); *P. rhodesi* sp. n. (p. 73); *P. convexa* sp. n. (p. 75); Wolfcampian, U.S.A., M. L. Thompson.

†*Pseudosiderolites* gen. n. (p. 206) [genotype *Siderolites vidali* Douvillé 1907] Cretaceous, A. H. Smout (2).

†*Pseudotexularia intermedia* sp. n. (p. 231), Cretaceous, Bavaria, I. de Klasz (1).

†*Pseudotextulariella* Barnard 1953 gen. n. (p. 198); validation thereof, H. E. Thalmann (1).

†*Pullenia osloensis* nom. nov. (p. 194) (for *P. quinqueloba* var. *minuta* Feyling-Hanssen 1954) Post-Pleistocene, Oslo, R. W. Feyling-Hanssen (2); †*P. quinqueloba* var. *minuta* (p. 133), Post-Pleistocene, Oslo, R. W. Feyling-Hanssen (1).

†*Pyrulina shoalcreekensis*, *brykerwoodensis* spp. n. (p. 344); Cretaceous, Texas, F. J. Bullard.

†*Pyrulinoides antilleanus* sp. n. (p. 361) Eo-Oligocene, Barbados, J. P. Beckmann.

Quinqueloculina norvangi nom. n. (p. 126) [for *Quinqueloculina nitida* Norvang 1948 (non d'Orbigny)], Recent, Argentine coast, E. Boltovskoy (1); *Q. pentagona* sp. n. (p. 33), off Genoa, M. Giunta; *Q. rhodiensis* nom. nov. (p. 12) for *Q. costata*

d'Orbigny 1826 (nom. nud. non Karrer 1867); Gulf of Mexico, F. L. Parker (1).

†*Ramulina novaculeata* nom. n. (p. 346) [for *R. aculeata* Wright 1886 (non *Dentalina aculeata* d'Orbigny 1840) F. J. Bullard.

†*Rectobolivina asanoi* sp. n. (p. 96) Miocene, Japan, S. Murata (1).

†*Rectoglandulina* gen. n. (p. 3) *appressa* sp. n. (p. 4) (genotype); *R. obesa* sp. n. (p. 5); A. R. Loeblich & H. Tappan (1).

†*Rectuvigerina krachemensis* sp. n. (p. 484), Miocene, Algeria, G. Cheylan, Magné, Sigal & Grekoff.

†*Reichelina lamarensis* sp. n. (p. 929), Permian, West Texas, J. W. Skinner & G. L. Wilde; †*R. ? kiluensis* sp. n. (p. 12), Upper Palaeozoic, Indochina, E. Saurin (1).

†*Reticulophragmium* gen. n. (p. 557) [nom. nov. for *Alveolophragmium (pars)*] [genotype *Alveolophragmium venezuelanum* Maync, 1952]. W. Maync (4).

†*Reussella checchia-rispoli* sp. n. (p. 34), Tertiary, Italy, F. M. Kicinski; †*R. tricarinata* sp. n. (p. 67) Oligocene, Hungary, R. M. Nyirő.

†*Reophax lawensis* sp. n. (p. 234); *R. dalriensis* sp. n. (p. 235), Carboniferous, Scotland, R. H. Cummings (1); †*R. romanica* sp. n. (p. 156), Oligocene, Italy, C. Emiliani (1).

†*Rhabdammina vaciva* sp. n. (pl. 158), Oligocene, Italy, C. Emiliani (1).

†*Rhabdorbitoides* gen. n. (p. 97) *hedbergi* sp. n. (p. 98) (genotype) Upper Cretaceous, Cuba, P. Brönnimann (3).

†*Rimulina*, emendation thereof, (p. 22), A. R. Loeblich & H. Tappan (2).

†*Robertina conatoi* sp. n. (p. 172), Pliocene, Italy, B. Martinis (2).

†*Robulus asanoi, tanoensis* spp. n. (p. 28), Tertiary, Japan, Y. Takayanagi (2); †*R. ashiiyaensis* sp. n. (p. 61) Palaeogene, Japan, S. Murata (7); †*R. bullatus* var. n. *carinatus* (p. 249), Eocene, Italy, F. P. Decima

& F. Ferasin ; *R. limbosus* subsp. n. *chiriguano* (p. 143), Recent, Argentine coast, E. Boltovskoy (1) ; †*R. notensis* sp. n. (p. 13) Miocene, Japan, K. Asano (3) ; †*R. trompi* sp. n. (p. 58) Upper Eocene, Egypt, S. E. Ansary ; †*R. youngquisti* sp. n. (p. 9), Paleocene, Peru, L. Weiss (2).

†*Rotalia algeriana* sp. n. (p. 488), Cretaceous, Algeria, G. Cheylan, Magné, Sigal & Grekoff ; †*R. beccarii* subsp. n. *hataatensis* (p. 62) Miocene, Japan, Y. Takayanagi (1) ; †*R. hensoni* sp. n. (p. 45) ; *R. dukhani* sp. n. (p. 46) ; Lower Tertiary, Qatar, A. H. Smout (1) ; †*R. yubariensis* sp. n. (p. 49) Miocene, Japan, K. Asano (2).

†*Rotaliammina*, emendation thereof, (p. 20), A. R. Loeblich & H. Tappan (2).

†*Rotaliidea* ; reclassification thereof, A. H. Smout (2).

†*Sakesaria dukhani* sp. n. (p. 57) ; *S. d.* var. n. *cordata* (p. 58) ; *S. ornata* sp. n. (p. 58) ; Lower Tertiary, Qatar, A. H. Smout (1).

†*Saracenaria barnardi* sp. n. (p. 59) Upper Eocene, Egypt, S. E. Ansary ; †*S. reesidei* sp. n. (p. 114) Cretaceous, Wyoming, S. K. Fox.

†*Schenckiella stainforthi* sp. n. (p. 8) Paleocene, Peru, L. Weiss (2).

†*Schlumbergerella* gen. n. (p. 19) (gentotype *Baculogypsina floresiana* Schlumberger) Quaternary, Indonesia S. Hanzawa (1).

†*Schubertella delumbata* sp. n. (p. 15), Upper Palaeozoic, Indochina, E. Saurin (1) ; †*S. japonica* sp. n. (p. 53) [nom. nud.], Upper Palaeozoic, Japan, R. Toriyama (2).

†*Schwagerina okafujii*, *etoi*, *kyowaensis* spp. n. (p. 52) [nom. nud.], Upper Palaeozoic, Japan, R. Toriyama (2) ; †*S. odakai* sp. n. (p. 100) ; *S. motohashii* sp. n. (p. 101) ; *S. paragumbeli* sp. n. (p. 103) ; *S. muaii* sp. n. (p. 104) ; Permian, Japan, R. Morikawa (4) ; †*S. minuta* sp. n. (p. 53) ; *S. camp* sp. n. (p. 54) ; *S. campensis* sp. n. (p. 57) ; *S. pinosensis* sp. n. (p. 58) ; *S. grandensis* sp. n. (p. 59) ; *S. andresensis* sp. n. (p. 60) ; *S. colemani*, *jewetti* spp. n.

(p. 61) ; *S. verveillei* sp. n. (p. 62) ; *S. elkoensis* sp. n. (p. 63) [authorship to Thompson & Hansen] ; *S. wellensis* sp. n. (p. 64) [authorship to Thompson & Hansen] ; *S. eolata* sp. n. (p. 64) ; *S. neolata*, *complexa* spp. n. (p. 65) ; *S. youngquisti* sp. n. (p. 67) [authorship to Thompson & Hansen] Wolfcampian, U.S.A., M. L. Thompson.

†*Shackoina* ; systematics thereof, E. M. Gallitelli ; †*S. tappanae* sp. n. (p. 142), Cretaceous, Italy, E. M. Gallitelli ; †*S. cabri* sp. n. (p. 20), Cretaceous, Algeria, J. Sigal (1).

†*Sigmomorphina chilena* sp. n. (p. 18), Eocene, Chile, R. Todd & H. I. Kniker ; †*S. inoeroclavensis* sp. n. (p. 192) ; Jurassic, Poland, W. Bielecka & W. Pozaryski.

†*Silvestriella* gen. n. (p. 17) (genotype *Calcarina tetraëdra* Gumbel) Eocene, Europe, S. Hanzawa (1).

†*Sinzowella variabilis* sp. n. (p. 33), Eocene, France, Y. Le Calvez.

†*Siphogenerinoides bentonstonei* sp. n. (p. 249), Cretaceous, Columbia, C. D. Redmond (1).

†*Siphonodosaria chilena* sp. n. (p. 23), Eocene, Chile, R. Todd & H. I. Kniker.

†*Siphotextularia masudai* sp. n. (p. 17), Miocene, Japan, K. Asano (3).

†*Sphaeroidina japonica* sp. n. (p. 19) Miocene, Japan, K. Asano (3).

†*Sphaeroidinella senni* sp. n. (p. 394), Eo-Oligocene, Barbados, J. P. Beckmann.

†*Spirillina elongata* sp. n. (p. 196) ; Jurassic, Poland, W. Bielecka & W. Pozaryski.

†*Spirolina cylindracea* var. n. *glabra* (22) ; *S. mariei* sp. n. (p. 25) ; Eocene, France, Y. Le Calvez.

†*Spiroloculina bornemanni* nom. nov. (p. 161) (for *S. limbata* Bornemann 1855, non d'Orbigny 1826), Oligocene, Italy, C. Emiliani (1) ; †*S. morelleti* sp. n. (p. 504), Eocene, France, Y. Le Calvez & L. Feugueur ; †*S. henbesti* nom. n. (p. 82) Petri, [for *Spiroloculina concava* Petri 1954

(non *Sp. acutimargo* Brady var. *con-cava* Wiesner 1913)], H. E. Thalmann (2).

†*Spiroplectamina apenninica* sp. n. (p. 142) Oligocene, Italy, C. Emiliani (1); †*S. brunswickensis* sp. n. (p. 6); *S. elgansoensis* sp. n. (p. 7); Eocene, Chile, R. Todd & H. I. Kniker; †*S. higuchii* sp. n. (p. 27) Tertiary, Japan, Y. Takayanagi (2); †*S. phauloides* sp. n. (p. 54), Cenomanian, Canada, C. R. Stelck & J. H. Wall.

†*Spiroplectinata jaekeli* subsp. n. *senonica* (p. 225), Cretaceous, Bavaria I. de Klasz (1).

†*Stacheoides* gen. n. (p. 343) [genotype *Stacheia polytrematoides* Brady 1876]; *S. papillata* sp. n. (p. 344), Carboniferous, Great Britain, R. H. Cummings (3).

†*Staffella akagoensis* sp. n. (p. 47) [nom. nud.] Upper Palaeozoic, Japan, R. Toriyama (2); †*S. rotundata* sp. n. (p. 11), Upper Palaeozoic, Indochina, E. Saurin (1).

†*Streblus beccarii* (Linnaeus) var. *mendesi* nom. n. (p. 82) Petri [for "*Rotalia*" *beccarii* (Linnaeus) var. *angulata* Petri 1954], H. E. Thalmann (2); †*S. saipanensis* sp. n. (p. 27) Miocene, Saipon, W. S. Cole & J. Bridge.

†*Subalveolina pérébaskini* sp. n. (p. 257), Cretaceous, France, M. Reichel.

†*Textularia gravenori* sp. n. (p. 55) Cenomanian, Canada, C. R. Stelck & J. H. Wall; †*T. leinzi* nom. n. (p. 82), Petri [for *Textularia curta* Petri 1954 (non *T. flintii* Cushman var. *curta* Cushman 1922)], H. E. Thalmann (2); †*T. magallanica* sp. n. (p. 7), Eocene, Chile, R. Todd & H. I. Kniker; †*T. yatsushiroensis* sp. n. (p. 96) Miocene, Japan, S. Murata (1); †*T. notoensis* sp. n. (p. 20) Miocene, Japan, K. Asano (3).

†*Textularioides*; emendation thereof (p. 11), A. R. Loeblich & H. Tappan (2).

†*Thurammina minuscula* sp. n. (p. 2) Devonian, Czechoslovakia, V. Pokorný (2).

†*Tosaia* gen. n. *hanzawai* sp. n. (p. 30), (genotype) Tertiary, Japan, Y. Takayanagi (2).

†*Triasina* gen. n. *hantkeni* sp. n. (p. 368), Mesozoic, Hungary, L. Majzon (3).

†*Trilocularena* gen. n. (p. 13) (genotype *Miliammina circularis* Heron-Allen & Earland 1930) Recent A. R. Loeblich & H. Tappan (2).

†*Trisegmentina*; emendation thereof, (p. 15), A. R. Loeblich & H. Tappan (2).

†*Tristix carinata* sp. n. (p. 17) Cretaceous, Algeria, J. Sigal (1).

†*Tritaxia*, emendation thereof, (p. 19), A. R. Loeblich & H. Tappan (2); †*T. pyramidata* var. n. *diminuta* (p. 56) Cenomanian, Canada, C. R. Stelck & J. H. Wall; †*T. spiritensis* subsp. *prolongata* nom. n. (p. 82), Stelck & Wall [for *Tritaxia spiritensis* subsp. *elongata* Stelck & Wall 1954 (non *T. elongata* Halkyard 1919)], H. E. Thalmann (2).

†*Triticites langsonensis* sp. n. (p. 23) Upper Palaeozoic, Indochina, E. Saurin (1); †*T. pointensis* sp. n. (p. 37); *T. directus, confertus, spp. n.* (p. 38); *T. creekensis* sp. n. (p. 42); *T. cellamagnus* sp. n. (p. 43) [authorship to Thompson & Bissell]; *T. rockensis* sp. n. (p. 44), Wolfcampian, U.S.A., M. L. Thompson; †*T. isaensis, obai, michiae, tantula spp. n.* (p. 50); *T. ellipsoidalis, kuroiwaensis, densa, biconica spp. n.* (p. 51); [all nom. nud.], Upper Palaeozoic, Japan, R. Toriyama (2).

† ? *Trochammina algeriana* sp. n. (p. 481), Senonian, Algeria, G. Cheylan, Magné, Sigal & Grekoff; †*T. ashiyaensis* sp. n. (p. 61) Palaeogene, Japan, S. Murata (7); †*T. rutherfordi* sp. n. (p. 56); *T. wetteri* sp. n. (p. 59) Cenomanian, Canada, C. R. Stelck & J. H. Wall.

Trochamminisca gen. n. *cyclostoma* sp. n. (p. 7) [genotype] Northern Pacific, Z. G. Shchedrina.

Trochamminula gen. n. *fissuraperta* sp. n. (p. 5) [genotype] Northern Pacific, Z. G. Shchedrina.

†*Trocholina solecensis* sp. n. (p. 198); Jurassic, Poland, W. Bielecka & W. Pozaryski.

†*Tubinella*, emendation thereof (p. 18), A. R. Loeblich & H. Tappan (2).

†*Uvigerina costai* nom. n. (p. 12) [for *Uvigerina striata* Costa 1856 (non d'Orbigny)], Pliocene, Egypt, R. Said (1); †*U. hibridica* sp. n. (p. 606) [nom. nud.] Tertiary, Poland, N. N. Subbotina, V. V. Glushko, & L. S. Pishvanova; †*U. mediterranea* var. n. *compressa* (p. 96), Upper Eocene, Egypt, S. E. Ansary.

†*Vaginulina chugokuensis* sp. n. (p. 73) Miocene, Japan, S. Murata (8); †*V. zaglobensis* sp. n. (p. 173); *V. z.* var. n. *paraella* (p. 176); *V. kujaviensis* sp. n. (p. 177); Jurassic, Poland, W. Bielecka & W. Pozaryski.

†*Vaginulinopsis pseudodecorata* sp. n. (p. 146), Oligocene, Bavaria, H. Hagn & O. Hölzl (1).

†*Valvulammina parrelloides* sp. n. (p. 482), Senonian, Algeria, G. Chaylan, Magné, Sigal & Grekoff.

†*Valvulina angulosa* sp. n. (p. 12); *V. cribrobuliminoides, guillaumei* spp. n. (p. 13); *V. terquemii* nom. n. (p. 14) [for *Textilaria spinigera* Terquem 1882]; *V. triedra* sp. n. (p. 14); Eocene, France, Y. Le Calvez.

†*Valvulineria fabianii* sp. n. (p. 36) Tertiary, Italy, F. M. Kicinski; †*V. masudai* sp. n. (p. 20) Miocene, Japan, K. Asano (3); †*V. palegre-densis* sp. n. (p. 16), Paleocene, Peru, L. Weiss (2).

†*Vasicekia* gen. n. *moravica* sp. n. (p. 11) (genotype) Devonian, Czechoslovakia, V. Pokórny (2).

†*Ventilabrella decoratissima, alpina* spp. n. (p. 228); *V. bipartita* sp. n. (p. 229); *V. multicamerata* sp. n. (p. 230); Cretaceous, Bavaria, I. de Klasz (1).

†*Verbeekina verbeeki* var. n. *teber-daensis* (p. 144), Upper Palaeozoic, Caucasus, E. N. Dyakonova-Save-lyeva.

†*Verneuilinoides perplexus* var. n. *gleddeii* (p. 61) Cenomanian, Canada, C. R. Stelck & J. H. Wall.

†*Virgulina loeblichii* sp. n. (p. 191) Post-Pleistocene, Oslo, R. W. Feyling-Hanssen (2); *V. riggii* sp. n. (p. 186), Recent, Argentine coast, E. Boltovskoy (1); †*V. complanata* subsp. n. *fugeshiepsis* (p. 20), Miocene, Japan, K. Asano (3); †*V. dorreani* sp. n. (p. 16), Paleocene, Peru, L. Weiss (2).

†*Voorthuysenia* gen. n. (p. 169) (genotype *Epistomina tenuicostata* Bartenstein); *V. brandi* sp. n. (p. 183); *V. parafavosoides* sp. n. (p. 186); *V. pachyderma* sp. n. (p. 185); Mesozoic, J. Hofker (1).

†*Yabeina texana* sp. n. (p. 937), Permian, West Texas, J. W. Skinner & G. L. Wilde.

†*Yanbonia* gen. n. *moniliforme* sp. n. (p. 384) (genotype), Cretaceous, Burma, M. R. Sahni & V. V. Sastri.

(d) Heliozoa.

[No record].

(e) Radiolaria.

New radiolaria from the Okhotsk Sea, V. V. Reshetnyak (1).

†New Tertiary radiolaria from the East Indies, W. R. Riedel.

Circospathis sexfurca subsp. n. *trifida* (p. 33), Okhotsk Sea, Russia, V. V. Reshetnyak (1).

Coelacantha dogieli sp. n. (p. 36), Okhotsk Sea, Russia, V. V. Reshetnyak (1).

Cytocladus dogieli sp. n. (p. 10); Bering Straits, V. V. Reshetnyak (2).

†*Eucyrtidium elongatum* subsp. n. *peregrinum* (p. 812), Tertiary, East Indies, W. R. Riedel.

†*Lamprocyclas maritalis* subsp. n. *antiqua* (p. 811), Tertiary, East Indies, W. R. Riedel.

†*Lychnodictyum audax* sp. n. (p. 810), Tertiary, East Indies, W. R. Riedel.

†*Panartus avitus* sp. n. (p. 808), Tertiary, East Indies, W. R. Riedel.

†*Spongodiscus communis* subsp. n. *fragilis* (p. 809), Tertiary, East Indies, W. R. Riedel.

Tuscaretta horrida sp. n. (p. 33), Okhotsk Sea, Russia, V. V. Reshetnyak (1).

2.—MASTIGOPHORA ¹¹

A. PHYTOMASTIGINA

(a) Chrysomonadida.

†Systematics of the Coccolithophoridae, T. Braarud, G. Deflandre, P. Halldal & E. Kamptner.

†*Braarudosphaera bigelowi* (Gran. & Braarud) comb. nov. (p. 380) for *Pontosphaera bigelowi* Gran. & Braarud 1935) Eocene, B. Klumpp.

Coccolithites pinguis sp. n. (p. 35); *C. molengraaffi* sp. n. (p. 35); *C. timorensis*, *tibia*, *rottinensis*, *tubiformis obtusus*, spp. n. (p. 36); *C. discordeus* sp. n. (p. 37); *C. debilis* sp. n. (p. 38); *C. leptos* sp. n. (p. 11); *C. crenulatus*, *tholus*, *petasus*, *indicus*, *striatus*, *detorquatus*, spp. n. (p. 12); *C. tuberculatus insectus*, spp. n. (p. 13); *C. sulcatus*, *pennatus*, *ellipticus*, *lapillus*, *australis*, *paucifloratus* spp. n. (p. 14); *C. arcuatus*, *circumvallatus*, *martini*, *trematotes*, *pachymorphus*, spp. n. (p. 15); *C. deflandrei*, *anisotrema*, *excavatus*, *beperforatus*, spp. n. (p. 16) *C. convexus*, *sinuatus*, *circumlatus*, *glabrus*, spp. n. (p. 17); *C. lopadomorphus*, *pacificus*, *concameratus*, *amplificatus*, *campyloneis*, *curvatus* spp. n. (p. 18); *C. alternans*, *multipunctatus*, *bucculentus*, *pusillus*, *calathus* spp. n. (p. 19) *C. arachnoideus*, *crassilabris*, *cristatus*, *verbeeki*, *multifloratus* spp. n. (p. 20) *C. attenuatus*, *obliquus*, *infralimbatus* spp. n. (p. 21); *C. cruciatus* sp. n. (p. 22); *C. pachys*, *lepidus*, *multiraiatus*, *tornatus*, *cingulum*, *modestus*, spp. n. (p. 27); *C. imago*, *acutus*, *sculptus*, *sondanensis*, *caelatus* spp. n. (p. 28); *C. humilis* sp. n. (p. 31); *C. unilimbatus* sp. n. (p. 32); Recent, East Indies, E. E. Kamptner.

Coccolithus brouweri sp. n. (p. 32); *C. areolatus*, *membranaceus*, spp. n. (p. 33); *C. radiatus*, *decussatus*, *cruciferus*, spp. n. (p. 34); Recent, East Indies, E. Kamptner.

Codonomonas cylindrica, *dilatata* spp. n. (p. 166), brackish water, Belgium, W. Conrad & H. Kufferath

Cyclococcolithus wanneri, *pauciradiatus* spp. n. (p. 29); *C. moluccensis*, *hemisphaericus*, *collaris*, spp. n. (p. 30); *C. elatus*, *tanianus*, spp. n. (p. 31); *C. tropicus*, *craterformis*, spp. n. (p. 32); *C. turgens* sp. n. (p. 34); Recent, East Indies, E. Kamptner.

Labyrinthula algeriensis sp. nov. (p. 358), on fronds of *Laminaria iberica*, A. Hollande & M. Enjument (1).

Labyrinthulidae; systematics thereof, A. Hollande & M. Enjument (1).

Mallomonas subsalina sp. n. (p. 168), brackish water, Belgium, W. Conrad & H. Kufferath.

†*Pemma* gen. n. *rotundum* sp. n. (p. 381) (genotype) Eocene, Germany, B. Klumpp.

Scyphosphaera globulosa, *procera*, *piriformis*, *ampla*, spp. n. (p. 23); *S. cylindrica*, *canescens*, *penna*, *cantharellus*, spp. n. (p. 24); *S. lagena* sp. n. (p. 25); *S. conica*, *turris*, *tubifera* spp. n. (p. 26); Recent, East Indies, E. Kamptner.

(b) Cryptomonadida.

[No record]

(c) Dinoflagellata.

†Deflandreidae fam. nov. (p. 52), Oligocene, A. Eisenack (1).

Peridinium tregouboffi sp. n. (p. 2) marine, Monaco, Y. Halim..

†*Wetzeliiella similis* sp. n. (p. 58); *W. samlandica*, *ovalis*, spp. n. (p. 59) Oligocene, A. Eisenack (1).

(d) Euglenoidida.

Cyclidiopsidaceae fam. n. (p. 404); G. Huber-Pestalozzi (1).

Euglena basistellata, *foliacea* spp. n. (p. 205) brackish water, Belgium, W. Conrad & H. Kufferath.

Euglenocapsaceae fam. n. (p. 399); G. Huber-Pestalozzi (1).

(e) **Phytomonadida.**

Brachiomonas manca sp. n. (p. 217) brackish water, Belgium, W. Conrad & H. Kufferath.

Carteria cuboides, feldmanni, spp. n. (p. 220); *C. doelensis, irregularis, konion* spp. n. (p. 219); *C. massarti* sp. n. (p. 218); *C. vectensis* nom. n. (p. 218); brackish water, Belgium, W. Conrad & H. Kufferath.

Chlamydomonas fossalis sp. n. (p. 224), brackish water, Belgium, W. Conrad & H. Kufferath.

Conradimonas minusculus sp. n. (p. 226), brackish water, Belgium, W. Conrad & H. Kufferath.

Platymonas lilloensis sp. n. (p. 235), brackish water, Belgium, W. Conrad & H. Kufferath.

Polytomella: generic characters; *Polytomella papillata* sp. n. (p. 139), *P. parva* sp. n. (p. 139), *P. magna* sp. n. (p. 140), *P. capuana* sp. n. (p. 141), from Germany, E. G. Pringsheim.

Pyramimonas cruciata, micron, tetralampas spp. n. (p. 234); *P. cuneata*, sp. n. (p. 230); *P. nanella* sp. n. (p. 231); *P. longa, torta* spp. n. (p. 232); *P. inflata, pisum, urceolata* spp. n. (p. 233); *P. extravagans* sp. n. (p. 235); brackish water, Belgium, W. Conrad & H. Kufferath.

Scherffelia dubia var. n. *major* (p. 255), brackish water, Belgium, W. Conrad & H. Kufferath.

Sphenochloris lilloensis sp. n. (p. 225); brackish water, Belgium, W. Conrad & H. Kufferath.

B. ZOOMASTIGINA

(f) **Protomonadida.**

Leishmania zmeevi sp. n. (p. 55) from lizards, Middle Asia, A. M. Andruško & G. S. Markov (1).

Retortamonas testudae sp. n. (p. 62), intestina of tortoise, *Testudo argentina* London, M. A. R. Ansari (3).

Trypanosoma: morphology and life-cycles, E. R. Noble; *T. inopinatum*: revision of life-cycle in frog and leech, B. Buttner & N. Bourcart (1); *T. rangeli*: records, incidence, affini-

ties and life-cycle, R. Zeledon (1); *T. rangeli*, *T. ariarii* and related species in S. America, H. Groot; *T. napolesi* sp. n. (p. 52), *T. rebeloi* sp. n. (p. 55), *T. serranoi* sp. n. (p. 57) from fish *Tilapia*, Mozambique J. A. Travassos Santos Dias; *T. ocumarensis* sp. n. (p. 207) from S. American lizard, J. V. Scorza & C. Dagert; *T. striati* sp. n. (p. 84) from Indian fish *S. S. Qadri*; *T. serveti* sp. n. (p. 147) from Mexican lizard, D. Pelaez & F. Streber.

(g) **Trichomonadida.**

Hexamastix kirbyi sp. n. (p. 2), *H. crassus* sp. n. (p. 7) from Californian lizards, B. M. Honigberg (1).

Tritrichomonas simoni sp. n. (p. 2) from American grouse, R. F. Honess (1).

(h) **Hypermastigida.**

Holomastigotoides dharwarensis sp. n. (p. 17), *H. rayi* sp. n. (p. 18) from Indian termites, K. R. Karandikar & M. Vittal.

Parajoenopsis gen. n. (p. 37) (for *Joenopsis cephalotricha* Cutler) from Indian termite, M. Saleem.

Prorotrichonympha gen. n. (p. 35) (for *Trichonympha pristina* Imms) from Indian termite, M. Saleem.

Pseudotrichonympha cardiformis sp. n. (p. 2), *P. pisciformis* sp. n. (p. 6), *P. subapicalis* sp. n. (p. 8) from Indian termites, K. R. Karandikar & M. Vittal.

Spirotrichonympha froilanoi sp. n. (p. 20), *S. karnataki* sp. n. (p. 21) from Indian termites, K. R. Karandikar & M. Vittal.

Trichonympha agilis var. n. *danubica* (p. 42) from termites, Rumania, M. A. Ionescu & A. Murgoci.

(i) **Diplomonadida.**

Giardia muris: morphology and division, M. A. R. Ansari (1); *G. intestinalis*: review of present knowledge, M. A. R. Ansari (2).

(j) **Polymonadida.**

[No record.]

(k) Opalinida.

Opalinid ciliates regarded as belonging to Zoomastigine order Opalinida, J. O. Corliss (2).

3.—SPOROZOA

A. COCCIDIOMORPHA

(a) Gregarinida.

Gregarines (undetermined) pathogenic to bees, M. Stejskal.

Gregarines from Tenebrionid beetles of Israel: description and host-list, J. Théodoridès (2).

Actinocephalus conicus var. n. magna (p. 76) from beetles, France, J. Théodoridès (5).

Alaspora gen. n. *depressa* sp. n. (p. 19) from Japanese insects, K. Obata.

Ancyrophora cervicornis sp. n. (p. 72) from beetles, France, J. Théodoridès (5).

Apolocystis pertusa sp. n. (p. 96), from oligochaetes, France, R. Loubatières.

Ascocephalus gen. n. *armatus* sp. n. (p. 17) from Japanese insects, K. Obata.

Campanacephalus gen. n. *villiersi* sp. n. (p. 813) from African beetle, J. Théodoridès (3).

Didymophyes scarabaei sp. n. (p. 55), *D. sisyphe* sp. n. (p. 56), *D. tuzetae* sp. n. (p. 58) from beetles, France, J. Théodoridès (5); *D. diminuta* sp. n. (p. 12) from Japanese insects, K. Obata.

Dirhynchocystis elongata sp. n. (p. 115) from oligochaetes, France, R. Loubatière.

Gregarina spp. parasitic in Tenebrionid beetles: description and host-list, J. Théodoridès (1); *G. scutovertexi* sp. n. (p. 35), *G. corolla* sp. n. (p. 35) from mite, Czechoslovakia, B. Erhardova (1); *G. fastidiosa* sp. n. (p. 398), *G. gibbsi* sp. n. (p. 395), *G. sandoni* sp. n. (p. 399), *G. impetuosus* sp. n. (p. 402) from S. African cockroaches, A. D. Harrison; *G.*

craspedonoti sp. n. (p. 6), *G. chilocori* sp. n. (p. 5), *G. arthromacrae* sp. n. (p. 3), *G. gonocephali* sp. n. (p. 9), *G. tokonoi* sp. n. (p. 11), *G. ovosatellitidis* sp. n. (p. 10) from Japanese insects, K. Obata; *G. wahrmani* sp. n. (p. 12), *G. ormieri* sp. n. (p. 15), *Gregarina* sp. n. (? n.) (pp. 10, 14, 17) from Tenebrionid beetles, J. Théodoridès (1); *G. maculata* var. n. *banyulensis* (p. 64) from beetles, France, J. Théodoridès (5).

Hoplorhynchus hexacanthus sp. n. (p. 16) from Japanese insects, K. Obata.

Monocystidae: key for determination of genera, characters of latter, morphology and bionomics, and host-list, R. Loubatières.

Monocystis buccalis sp. n. (p. 101), *M. cristata* sp. n. (p. 110), *M. cuneiformis* sp. n. (p. 110), *M. hederacea* sp. n. (p. 116), *M. lopadiformis* sp. n. (p. 111), *M. proteiformis* sp. n. (p. 116), *M. hispida* sp. n. (p. 88) from Oligochaetes, France, R. Loubatières; *M. dichogasteri* sp. n. (p. 372) from African Oligochaete, O. Tuzet & M. Zuber-Vogeli.

Nematocystis caudata sp. n. (p. 121), *N. claviformis* sp. n. (p. 97), *N. clipeiformis* sp. n. (p. 131), *N. navicula* sp. n. (p. 132), *N. sinuosa* sp. n. (p. 119), *N. tuzeti* sp. n. (p. 135), *N. pistilliformis* sp. n. (p. 105) from Oligochaetes, France, R. Loubatières.

Ramicephalus gen. n. *ozakii* sp. n. (p. 20) from Japanese insects, K. Obata.

Rhynchocystis ovata sp. n. (p. 120) from Oligochaetes, France, R. Loubatières.

Schizogregarines: revised systematics (families, tribes, genera), J. Weiser (1, 3, 4).

Steinina minor sp. n. (p. 14) from Japanese insects, K. Obata.

Stenophora mandrakae sp. n. (p. 18) from Madagascar Myriapods, O. Tuzet & J. F. Manier; *S. ozakii* sp. n. (p. 94) for *S. nematoides* L. & D. 1903 *pro parte*, T. Hukui.

Stictospora provincialis var. n. *anomala* (p. 80) from beetles, France,

J. Théodoridès (5); *S. coelocystis* sp. n. (p. 15) from Japanese insects, K. Obata.

Stylocephalus eastoni sp. n. (p. 83), *S. phalloides* sp. n. (p. 87) from beetles, France, J. Théodoridès (5).

Triboliocystis garnhami gen. n., sp. n. (p. 155) from flour beetle, England, A. S. Dissanaïke (2).

Zygocystis cordiformis sp. n. (p. 106) *Z. eiseniae* sp. n. (p. 114), *Z. grassei* sp. n. (p. 90) from Oligochaetes, France, R. Loubatières.

(b) Coccidiida.

Coccidia of mammals and birds in Czechoslovakia, B. Ryšavý.

Cryptosporidium meleagridis sp. n. (p. 262) from turkeys, Britain, D. Slavin.

Dorisiella arizonensis sp. n. (p. 52) from American wood rat, N. D. Levine, V. Ivens & F. J. Kruidenier (2).

Eimeria: list of spp. described from Amphibia with differential diagnosis, L. H. Saxe; Key to spp. from deer, J. F. Landram & R. F. Honess; *E.* spp. recorded from grouse, with check list; *E. pattersoni* sp. n. (p. 6) from Sage grouse, U.S.A., R. F. Honess & G. Post; *E. alabamensis*: endogenous life-cycle, L. R. Davies, D. C. Boughton & G. W. Bowman; *E. wapiti* sp. n. (p. 26) from American elk, R. F. Honess (2); *E. intestinalis* (p. 182) nom. n. for *E. piriformis* Grelesiani & Nadiradze, 1945, nec Kotlan & Pospesch, 1934, E. M. Kheissin; *E. punctata* nom. n. (p. 115) for *E. honessi* Landers, 1952 which is preoccupied, E. J. Landers; *E. koidzumii* sp. n. (p. 312) from Japanese gecko, H. Matubayasi; *E. dolichotis* sp. n. (p. 83) from Patagonian Cavy, E. G. Morini, J. J. Boero & A. Rodríguez; *E. weissi* sp. n. (p. 91) from Peruvian field mouse, L. G. Mugaburu; *E. chaus* sp. n. (p. 146) from lynx, B. Ryšavý; *E. distorta* sp. n. (p. 663), *E. kingi* sp. n. (p. 665), *E. waltoni* sp. n. (p. 665), *E. ambystomae* sp. n. (p. 666) from salamanders, U.S.A. L. H. Saxe; *E. anatis* sp. n. (p. 434) from ducks, Germany, E. Scholtyseck.

Hepatozoon in American squirrels, C. M. Herman & D. L. Price.

Haemogregarina achiri sp. n. (p. 174) from fishes, Atlantic Ocean, D. C. Saunders; *H. bipileata* sp. n. (p. 157) from Indian cobra, K. Svahn.

Isospora felis: life-cycle in cat, D. J. Hitchcock; *I. heissenii* sp. n. (p. 161) from turkey, Middle Asia, S. K. Svanbaev; *I. talpae* sp. n. (p. 219), *I. riccii* sp. n. (p. 220) from mole, Italy, G. Agostinucci (2).

Klossia perplexens sp. n. (p. 624) from deer-mouse, *K. variabilis* sp. n. (p. 624) from bat, U.S.A. with description of other spp. recorded, N. D. Levine, V. Ivens & F. J. Kruidenier (1).

Klossiella equi sp. n. (p. 285) from donkeys, U.S.A. H. R. Seibold & R. E. Thorson (1); later recognized as synonym and homonym of *K. equi* Baumann, 1946, H. R. Seibold & R. E. Thorson (2).

Schellackia occidentalis sp. n. (p. 31) from American lizards, J. S. Bonorris & G. H. Ball.

(c) Haemosporidia.

Babesia vanhoofi sp. n. (p. 8) from African mongoose, R. M. de Smet & M. Lips.

Babesiella: species occurring in European cattle; *B. berbera* regarded as synonym of *B. bovis*; *B. divergens* restored as sp. independent of *B. bovis*, T. Simitch, Z. Petrovitch & R. Rakovec.

Dactylosomidae fam. n. (p. 8) of Babesioidea, for *Dactylosoma* spp. (list of these and their hosts included), S. Jakowska & R. F. Nigrelli.

Hepatozoon microti: occurrence in rodents of Czechoslovakia, B. Erhardova (2).

Leucocytozoon simondi: schizogony described, A. B. Cowan (2).

Plasmodium: validation of generic name, Anon. (2); N. R. Stoll; *P. pinottii* sp. n. (p. 611) from toucan, Brazil, J. Muniz & R. de R. L. Soares; *P. Kochi*: comparison of

its varieties, G. Lefrou & J. Martignoles; *P. cynomolgi* and *P. gonderi*: specific independence determined by absence of cross-immunity in monkeys, P. C. C. Garnham & R. S. Bray; *P. berghei*: bibliography, Anon. (3); *P. praecox*: incidence in Iraq, A. H. Al-Abbass.

B.—CNIDOSPORIDIA

(d) Myxosporidia.

Ceratomyxa artedii sp. n. (p. 24) from fishes of Barents Sea, J. I. Poljanskij.

Chloromyxum musculoliquefaciens sp. n. (p. 473) from Japanese fish, K. Matsumoto.

Myxobylatus platessa comb. n. (p. 31) for *Henneguya platessa*, J. I. Poljanskij.

Myxoproteus brevis sp. n. (p. 29) from fishes of Barents Sea, J. I. Poljanskij.

Neochloromyxum gen. n. *cruciformum* sp. n. (p. 476) from Japanese fish, K. Matsumoto.

Sphaeromyxa minuta sp. n. (p. 28) from fishes of Barents Sea, J. I. Poljanskij.

(e) Microsporidia.

Nosema buckleyi sp. n. (p. 155) from flour beetle, England, A. S. Dissanaïke (2).

Perezia fumiferanae sp. n. (p. 420) from Spruce Budworm (Insecta), N. America; with differential characters of other recorded spp., H. M. Thomson.

Plistophora gadi sp. n. (p. 33) from fishes of Barents Sea, J. I. Poljanskij

Thelohanellus acuminatus sp. n. (p. 1129), *T. dogieli* sp. n. (p. 1130), *T. amurensis* sp. n. (p. 1130), *T. nikolskii* sp. n. (p. 1130) from carps river Amur, A. C. Achmerov (1).

Thelohania georgevitchi sp. n. (p. 925) parasitic in polychaete and hyperparasitic in ciliate, Atlantic coast of France, P. de Puytorac (2).

(f) Actinomyxidida.

Actinomyxidida: systematics, morphology, development and ecology, J. Janiszewska (1).

Hexactinomyxon hedvigi sp. n. (p. 422) from Oligochaete, *Tubifex*, Poland, J. Janiszewska (1).

Raabeia gen. n. *gorlicensis* sp. n. (p. 415) from Oligochaete *Tubifex*, Poland, J. Janiszewska (1).

Siedleckiella antonii sp. n. (p. 88) from Oligochaete worm, Poland, J. Janiszewska (2).

(g) Sarcosporidia.

[No record].

(h) Haplosporidia.

Amphiacantha ovalis sp. n. (p. 446) *A. attenuata* sp. n. (p. 453), hyperparasitic in gregarines of annelid worms, J. W. Stubblefield.

Dermocystidium guyenoti sp. n. (p. 309) from perch; with description of other spp. recorded and their comparison with *Lymphocystidium* spp., L. Thélin.

Metchnikovellidae: list of described spp., with gregarine and annelid hosts, and differential characters, J. W. Stubblefield.

Sporozoa incertae sedis.

Toxoplasma gondii: size differences in strains, A. Harboe & S. Erichsen; *T. glareoli* sp. n. (p. 382) from bank vole, Europe, B. Erhardova (3).

4.—CILIOPHORA

OPALINATA

Opalinidae regarded as and transferred to Mastigophora Zoomastigina (k) as Opalinida (q.v.), J. O. Corliss (1, 2).

A.—CILIATA

Outline of proposed revision of the systematics and evolution of ciliates, J. O. Corliss (3).

(a) Holotrichida.

Anoplophrya dichogasteri sp. n. (p. 374) from African Oligochaete, O. Tuzet & M. Zuber-Vogeli.

Balanophrya pernix sp. n. (p. 264), temporary meadow pool, Hungary, J. Gelei.

Bursella oligobursa sp. n. (p. 262), temporary meadow pool, Hungary, J. Gelei.

Cyclotrichium pectinatum sp. n. (p. 274), temporary meadow pool, Hungary, J. Gelei.

Cyrtolophosis cavistoma sp. n. (p. 303); temporary meadow pool, Hungary, J. Gelei.

Didinium minimum sp. n. (p. 277), temporary meadow pool, Hungary, J. Gelei.

Dileptus spiralis sp. n. (p. 284), temporary meadow pool, Hungary, J. Gelei.

Disematostoma frontoniiforme sp. n. (p. 293); *D. invallatum* sp. n. (p. 295); *D. colpidioides* sp. n. (p. 299); temporary meadow pool, Hungary, J. Gelei.

Foettingeria (? sp. n.) from sea anemone, California, G. H. Ball & R. E. Moebius.

Hovasiella gen. n. *polydora* sp. n. (p. 32) P. de Puytorac (1).

Juxtaradiophrya enchytraeoides sp. n. (p. 97), on *Enchytraeoides* (Oligochaete), Roscoff, P. de Puytorac (3).

Lacrymaria lagynus sp. n. (p. 272); *L. lanceolata* sp. n. (p. 273), temporary meadow pool, Hungary, J. Gelei.

Lagynophrya mamillata sp. n. (p. 269); *L. ovalis* sp. n. (p. 270), temporary meadow pool, Hungary, J. Gelei.

Lwoffia gen. n. *cilifera* sp. n. (p. 285) (genotype), on branchial filaments of *Brachidontes* (*Mytilus*) *curvus*, America, E. N. Kozloff.

Nassula tricirrata subsp. n. *primitiva* (p. 862), temporary meadow pool, Hungary, J. Gelei.

Paramecium; systematics thereof, R. Wichtermann (1); diagnostic value of buccal organelles and discussion of systematic position, A. Yusa.

Penardiella ophryoglana sp. n. (p. 281), temporary meadow pool, Hungary, J. Gelei.

Perispira oligospira sp. n. (p. 283), temporary meadow pool, Hungary, J. Gelei.

Phascolodon limneticum sp. n. (p. 289), temporary meadow pool, Hungary, J. Gelei.

Plagiocampa ovata sp. n. (p. 266), temporary meadow pool, Hungary, J. Gelei.

Prorodon bacilliferum sp. n. (p. 268), temporary meadow pool, Hungary, J. Gelei.

Ptychostomum dichogasteri sp. n. (p. 373) from African Oligochaete, O. Tuzet & M. Zuber-Vogeli.

Radiophrya intermedia sp. n. (p. 93) on *Enchytraeoides* (Oligochaete), Roscoff, P. de Puytorac (3).

Sonderia labiata sp. n. (p. 210), sands, France, E. Fauré-Fremiet & M. Tuffrau.

Spathidium ascendens sp. n. (p. 518) *S. polymorphum* sp. n. (p. 530), F. Wenzel; *S. longinucleatum* sp. n. (p. 279); *S. sacculum* sp. n. (p. 280), temporary meadow pool, Hungary, J. Gelei.

Tetrahymena: case for nomen conservandum, J. O. Corliss & E. C. Dougherty; *T. corlissi* sp. n. (p. 12) from circulatory system of *Pseudotriton*, J. C. Thompson.

Trachelocerca phoenicopterus: nuclear division and reorganization, I. B. Rajkov.

(b) Heterotrichida.

Balantidium regarded as belonging to Holotrichida, E. Fauré-Fremiet (4).

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subsp. n. americanus (p. 209), cultured, U.S.A.; **B. u. subsp. n. japonicus** (p. 216), Yamagata; S. Suzuki.

Condyllostoma vastum **sp. n.** (p. 302), coasts of Kieler Bucht, K. J. Bock.

Folliculinid ciliates associated with oysters in Argentine waters, R. A. Ringuelet.

Licnophora liudiae **sp. n.** (p. 146), on larvae of *Liudia*, Bay of Algiers, M. Hamon.

Nyctotherus mandrakae **sp. n.** (p. 16) *N. madagascari* **sp. n.** (p. 19) from Madagascar myriapods, O. Tuzet & J. F. Manier.

Parafolliculina malacophila **sp. n.** (p. 183), *P. ostricola* **sp. n.** (p. 184) from coasts of Argentine, with key to spp. of genus, R. A. Ringuelet.

Woodruffia viridis **sp. n.** (p. 304); temporary meadow pool, Hungary, J. Gelei.

(c) Oligotrichida.

Halteria minima **sp. n.** (p. 312); temporary meadow pool, Hungary, J. Gelei.

Luxiella **gen. n.** (p. 1) *mitra* **sp. n.** (p. 2) (genotype); *L. glans* **sp. n.** (p. 3); stomach content of *Salpa maxima*, Bay of Algiers, J. Lecal.

(d) Entodiniomorpha.

Anoplodinium rupicaprae **sp. n.** (p. 187) from chamois, Germany, H. Christl.

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Entodinium rupicaprae **sp. n.** (p. 187) from chamois, Germany, H. Christl; *E. bengalensis* **sp. n.** (p. 89), *E. muntiacum* **sp. n.** (p. 90) from Indian ruminants, A. K. Banerjee.

Epidinium bovis **sp. n.** (p. 96), *E. rusa* **sp. n.** (p. 97) from Indian ruminants, A. K. Banerjee.

Eremoplastron asiaticus **sp. n.** (p. 94) from Indian cattle, A. K. Banerjee.

Eudiplodinium maggioides **sp. n.** (p. 189) from chamois, Germany, H. Christl.

(e) Hypotrichida.

Amphisiella lithophora **sp. n.** (p. 473), sand, France, E. Fauré-Fremiet (3).

Aspidisca pertinens **sp. n.** (p. 303), coasts of Kieler Bucht, K. J. Bock.

Hemiholostiche **gen. n. viridis** **sp. n.** (p. 314) (genotype), temporary meadow pool, Hungary, J. Gelei.

Holostiche mononucleata **sp. n.** (p. 327); temporary meadow pool, J. Gelei.

Kahlia bacilliformis **sp. n.** (p. 316); temporary meadow pool, Hungary, J. Gelei.

Paruroleptus ophryoglana **sp. n.** (p. 330); temporary meadow pool, Hungary, J. Gelei.

Parurosoma **subgen. n. dubium** **sp. n.** (sub. genotype) (p. 332); temporary meadow pool, Hungary, J. Gelei.

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Uroleptus contortus **sp. n.** (p. 318); temporary meadow pool, Hungary, J. Gelei.

(f) Peritrichida.

Aloricata; status thereof, D. Matthes (2).

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Opercularia ligiae **sp. n.** (p. 335) from Germany, D. Matthes (1).

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Trichodina unionis **sp. n.** (p. 43) from freshwater molluscs, Germany, A. Hampl; *T. gracilis* **sp. n.** (p. 18), *T. murmanica* **sp. n.** (p. 19), *T. oviducti* **sp. n.** (p. 20) from fishes of

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Vorticella: biochemical analysis, H. E. Finley & H. B. Williams.

B.—SUCTORIA

Suctorina collected on Antarctic islands by Swedish Polar expedition (1901-3), C. A. Allgén.

Acineta grahami sp. n. (p. 45) from Antarctic islands, C. A. Allgén.

Heliophrya erhardi: structure and bionomics, J. Dragesco, R. Blanc-Brude & M. Gauchery; J. Dragesco R. Blanc-Brude & Y. Skreb.

Thecacineta oblonga sp. n. (p. 41), from Antarctic islands, C. A. Allgén.

PROTISTA INCERTAE SEDIS

†Problematical microfossils from the Cuban Mesozoic, [Probably algal-hence not listed separately], P. Brönnimann (4).

†New Palaeozoic chitinozoans from North Europe, A. Eisenack (3).

†New Hystrichosphaeridians from the German Palaeozoic, D. Sanne-mann.

†Eocene microfossils from Germany, B. Klumpp.

†Oligocene microfossils from Bavaria, A. Eisenack (1).

†*Agalmatoaster* gen. n. *septem-radiatus* sp. n. (genotype) (p. 384) Eocene, B. Klumpp.

†*Ancyrochitina* gen. n. (p. 163) (genotype *Conochitina ancyrea* Eisenack 1931) Palaeozoic, A. Eisenack (2); †*A. fragilis* sp. n. (p. 175), Palaeozoic, Germany, A. Eisenack (2).

†*Angochitina filosa* sp. n. (p. 176) Palaeozoic, Germany, A. Eisenack (2); †*A. devonica*, sp. n. (p. 318) Devonian, Eifel, A. Eisenack (3).

†*Archaeomonas burdigalensis* sp. n. (p. 345) Tertiary, Spain, G. Colom (1).

†*Areoligera incerta* sp. n. (p. 389); Eocene, B. Klumpp.

†*Chonesphaera* gen. n. (p. 395) *incerta* sp. n. (p. 395); Eocene, Germany, B. Klumpp.

†*Conochitina intermedia* sp. n. (p. 161) Palaeozoic, Germany, A. Eisenack (2); †*C. conulus* sp. n. (p. 312), Palaeozoic, Baltic area; *C. oelandica* sp. n. (p. 312) Caradocian, Baltic area; A. Eisenack (3).

†*Cyathochitina* gen. n. (p. 313) [genotype *C. campanulaeformis* (Eisenack 1931)]; *C. regnelli* sp. n. (p. 313) Palaeozoic, Baltic area, A. Eisenack (3).

†*Discoaster heptaradiatus*, *nonaradiatus* spp. n. (p. 383), Eocene, B. Klumpp.

†*Dictyotidium* gen. n. (p. 179) (genotype *Leiosphaera dictyota* Eisenack 1938); *D. tenuiornatum* sp. n. (p. 180); Palaeozoic, Germany, A. Eisenack (2).

†*Hystrichokibotium* gen. n. (p. 387) *pseudofurcatum* sp. n. (p. 388) (genotype); Eocene, B. Klumpp.

†*Hystrichokolpoma* gen. n. (p. 388) *cinctum* sp. n. (p. 389) (genotype); Eocene, B. Klumpp.

†*Hystrichosphaeridium alcornu* sp. n. (p. 65); *H. inodes* subsp. n. *gracilis* (p. 66); *H. divergens* sp. n. (p. 67); *H. biformoides* sp. n. (p. 68); Oligocene, A. Eisenack (1); †*H. eoplanctonicum* sp. n. (p. 178); *H. meson* nom. nov. (p. 179) (for *H. intermedium* Deflandre 1937 non Wetzell), Palaeozoic, Germany, A. Eisenack (2); †*H. microtriainia*, *tiara*, spp. n. (p. 390); *H. inodes* sp. n. (p. 391); *H. diktyoplopus*; *H. d.* subsp. n. *latum* (p. 392); Eocene, B. Klumpp; †*H. astartes* sp. n. (p. 325); *H. brevispinosum* subsp. n. *callosum* (p. 325); *H. b.* subsp. n. *castaneoides* (p. 326); *H. coniferum*, *differtum*, *dignum*, *eisenacki* spp. n. (p. 327); *H. franconicum* sp. n. (p. 328); *H. integrum*, *longispinosoides* spp. n. (p. 329); *H. multipilosum* subsp. n. *validum* (p. 330); *H. mutabile*, *robustum* spp. n. (p. 331); *H. robustum* subspp. n. *robustum*, *fissum* (p. 331); *H. trifurcatum* subspp. n.

consonum, *procerum* (p. 332); *H. tuberosum*, *venustum* spp. n. (p. 345); all Givetian, Germany, D. Sanne-mann.

†*Lagenochitina esthonica* sp. n. (p. 311), Silurean, Baltic, A. Eisenack (3).

†*Palmnickia* gen. n. (p. 69) *lobifera* sp. n. (p. 70) (genotype) Oligocene, A. Eisenack (1).

†*Pterochitina* gen. n. (p. 177) (genotype *Bion perivelatum* Eisenack 1937) Palaeozoic, A. Eisenack (2); †*P. retracta* sp. n. (p. 317) Ordovician, Baltic area, A. Eisenack (3).

†*Pterospermopsis pelagica* sp. n. (p. 71) Oligocene, A. Eisenack (1).

†*Samlandia* gen. n. *chlamydophora* sp. n. (p. 76), Oligocene, A. Eisenack (1).

†*Sphaerochitina* gen. n. (p. 162) (genotype *Lagenochitina sphaerocephala* Eisenack 1932) Palaeozoic, A. Eisenack (2); †*S. acanthifera* sp. n. (p. 314), Palaeozoic, Baltic area, A. Eisenack (3).

†*Stylodiniopsis* gen. n. *maculatum* sp. n. (p. 75), Oligocene, A. Eisenack (1).

†*Tetrabrachiophora* gen. n. *natans* sp. n. (p. 76), Oligocene, A. Eisenack (1).

†*Trochoaster* gen. n. (p. 384) *simplex* sp. n. (p. 385) (genotype); *T. duplex* sp. n. (p. 385); Eocene, B. Klumpp.

